

Ten Lakes

Montana Wilderness Study Act Area

Final Report & Proposal

Appendix A - Original Draft Report & Proposal

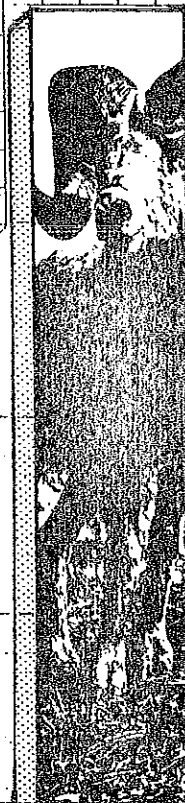
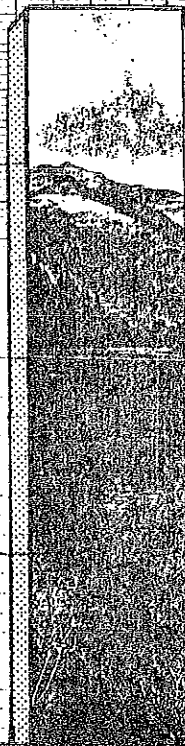
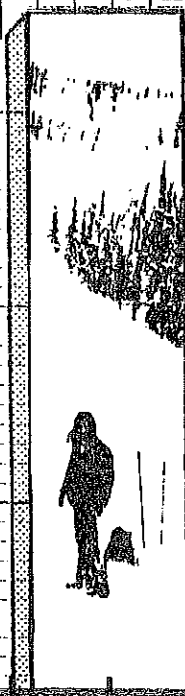
DRAFT

United States
Department
of Agriculture



Forest Service

Kootenai
National Forest



This errata relates to the following November 1982 Draft Report and Proposal for the Ten Lakes Montana Wilderness Study Act area. The following document is complete except for the alternative maps that accompanied the original document. The maps accompanying the Final Report and Proposal include the original alternatives.

Page i - Table of Contents

Item 7f. Should read -

f. Comparison of Nonpriced Net Public Benefits

Page 7 of Summary and on page 11-19a of the main document - Chart entitled "Summary of Net Public Benefits"

Area allocated to roadless management including wilderness for Alternatives D and Proposed should be 18,600 acres, not 18,800 acres as written.

Opportunity cost for Alternative B should be \$1,900,000 not \$1,904,000.

Page 21 of Summary and on page 11-20 of the main document - Chart entitled "Comparison of Alternatives"

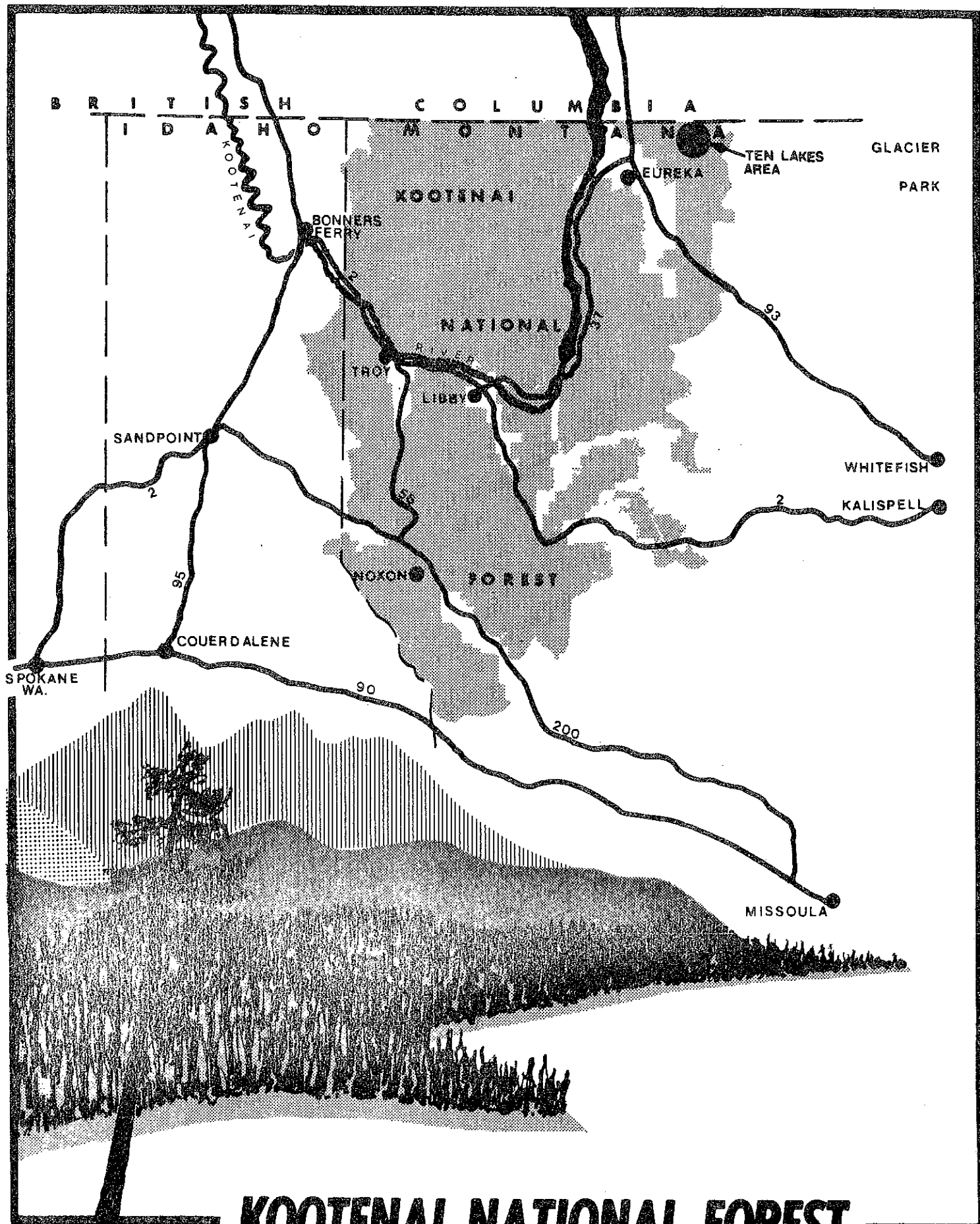
Roadless management areas including wilderness for Proposed Action and Alternative D should be 18,600, not 18,800.

Page 1-1 (and throughout the document)

Wherever the term "Environmental Impact Statement" or "DEIS" is used, substitute "Report and Proposal."

SUMMARY
OF THE
REPORT AND PROPOSAL
FOR THE
TEN LAKES
MONTANA WILDERNESS STUDY ACT AREA

KOOTENAI NATIONAL FOREST
NORTHERN REGION
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE



KOOTENAI NATIONAL FOREST

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SUMMARY

I. PURPOSE AND NEED

On November 1, 1977, Congress passed the Montana Wilderness Study Act (MWSA) (P.L. 95-150). Two of the nine areas, Mt. Henry and Ten Lakes, are on the Kootenai National Forest. Mt. Henry (24,700 acres) was addressed in a Regional Draft Environmental Impact Statement along with two other study areas in Montana (Mt. Henry, Taylor-Hilgard, and West Pioneer MWSA areas, September 1980). The Ten Lakes MWSA Area was analyzed during the Kootenai Forest planning process.

This summary discusses the Draft Environmental Impact Statement displaying the environmental consequences that would result from implementing the Proposed Action for Ten Lakes which is nonwilderness, as well as five other alternatives.^{1/} These alternatives, including the Proposed Action, were formulated to respond to the public issues determined during the MWSA public workshops in September 1979, and include:

- A. Timber - What is the timber potential of the area and where is timber management most appropriate?
- B. Recreation - What are the amount and kinds of recreation opportunities the area presently supports or is capable of supporting?
- C. Wildlife - What are the principal game, nongame, and threatened and endangered species and what are the opportunities for habitat improvement?
- D. Minerals - What is the hard rock, oil, and gas potential of the area and how should the area be managed for that potential?
- E. Wilderness Suitability - What are the wilderness attributes of the study area and to what extent is the area suitable for wilderness?
- F. Other Wilderness - What other Federal lands are classified wilderness, proposed wilderness, or are under study as wilderness in the surrounding area and to what extent should they influence the classification of the study lands?
- G. Wilderness Quality - What consideration should be given to wilderness quality in determining which lands are proposed for wilderness?
- H. Wilderness Diversity - What consideration should be given to a diversified National Wilderness Preservation System when proposing lands for wilderness?

^{1/} The recommendations are preliminary administrative recommendations which will receive further review and possible modification in the Offices of the Chief, the Secretary of Agriculture, and the President of the United States. Final decisions on wilderness designation have been reserved by the Congress to itself.

- I. Protection - What is the present condition and the potential for serious fire and/or insect and disease infestation; what are the current protection measures, and what measures are needed?
- J. Community Stability - What consideration should be given to maintaining current employment levels for dependent communities?
- K. Social Situation - What is the social structure of the communities and counties adjacent to the study area, and what potential effects should be considered?
- L. RPA - What resources do the areas contain and how should the study area's resource outputs be allocated toward meeting the RPA program goals?
- M. Opportunities for Physically Handicapped - How much need is there for the study lands to contribute to recreation opportunities for physically handicapped and elderly persons?

Planning Area Description

The 35,900-acre Ten Lakes MWSA is situated in the northeastern corner of the Kootenai National Forest, bordering Canada in northwest Montana (see map). It is located in the northeast corner of Lincoln County, Montana.

II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. Alternative Formulation

The following alternatives for the Ten Lakes Wilderness Study Area were developed to respond to the intent of Public Law 95-150, the Montana Wilderness Study Act. The intent was to analyze the wilderness suitability of the Ten Lakes MWSA and present to Congress a recommendation for wilderness, part wilderness, or nonwilderness.

All the alternatives were formulated based on the Forest Plan alternatives and with the help of public involvement. The formulation of the Ten Lakes Alternatives included a determination of a high as well as a low level of resource production potential (supply) including present net value.

These supply potentials helped define the decision space available for each resource. Opportunities to resolve the issues were then identified for each resource, including present net value (PNV), comparing existing and projected use (demand) to the high and low supply levels.

Summary Figure TL-1 at the end of this summary displays various outputs and effects which are considered indicative of how well the issues were resolved under each alternative.

B. Alternatives Considered in Detail

The alternatives considered for Ten Lakes included the following:

Ten Lakes Current Direction (No Action)^{2/}

This alternative proposes that the Ten Lakes Wilderness Study Area be nonwilderness and managed in accordance with the current Unit Plan allocations which recommends the maintenance and expansion of the original 6,500-acre Ten Lakes Scenic Area. The allocations and land uses include a 16,400-acre roadless recreation area (which includes the original scenic area plus the recommended expansion) visual resource management, grizzly habitat management, and timber production. The intent of this alternative is to continue the existing resource use based on previous planning efforts and decisions which included public involvement.

Ten Lakes Alternative A

This alternative proposes 16,400 acres for wilderness classification out of the total 35,900 acres in the study area. The 16,400 acres consists of the original and expanded Ten Lakes Scenic Area that was mentioned in the Current Direction alternative, above. The intent of this alternative is to provide a wilderness area on the lands presently being managed as roadless while providing high levels of commodity outputs on the remaining lands.

^{2/} Current Direction, as used in this Report and Proposal, refers to the Unit Plan Allocations proposed in the Eureka-Grave Creek Planning Unit. The present status of the area is wilderness study, where no developmental activities will occur.

Ten Lakes Alternative B

This alternative proposes 29,600 acres for wilderness classification which included both the nonproductive and the low to moderately productive timberlands. The intent of this alternative is to provide as much wilderness experience as possible while still providing commodity outputs on highly productive timberlands.

Ten Lakes Alternative C

This alternative proposes that the entire wilderness study area, 35,900 acres, be classified as wilderness. The intent is to provide a wilderness experience in the Ten Lakes Area that coincides with the wilderness study boundary.

Ten Lakes Alternative D

This alternative proposes that the original 6,500-acre Scenic Area be classified wilderness while the remainder of the wilderness study area be allocated to other uses similar to the Proposed Action. The intent is to provide a wilderness experience in the scenic "core area" which would be spatially removed, as much as possible, from many of the existing developments such as roads and timber harvesting.

Ten Lakes Proposed Action

This alternative proposes that the Ten Lakes Wilderness Study Area be nonwilderness. The allocations and land uses include an 18,600-acre roadless recreation area and other resource opportunities similar to Alternative A mentioned above.

C. Comparison of Nonpriced Net Public Benefits

The alternatives were evaluated to determine which one produced the highest net public benefit. Net public benefit is an important objective since it permits the determination of the overall value to the public of all benefits less all costs. These benefits and costs occur regardless of whether they are priced (present net value) or nonpriced.

The present net value component of each alternative is displayed in Summary Figure TL-3 on page 7. Each alternative is compared as to how well it addresses the nonpriced components of net public benefit. The nonpriced components of net public benefits include:

1. Dispersed Recreation Opportunities

PNV accounts for the quantity of dispersed recreation use but the value or cost of displacing an established or desired use is not considered in FORPLAN.

The Ten Lakes Scenic Area is a popular spot for snowmobiling and this use is projected to increase. A wilderness designation would terminate any existing and projected snowmobile use. The alternatives were analyzed for their effect on snowmobile use and compared to the PNV. The amount of area available for snowmobile use is used to evaluate the effect on snowmobiling.

2. Oil and Gas Exploration Opportunities

The value of providing a minimum of restrictions on potential oil and gas exploration is not considered in FORPLAN. The Ten Lakes Area is located within the western edge of the Overthrust Belt. This geologic formation is presently being prospected by the oil and gas industry and interest in leasing is apparent. Oil and gas leasing and exploration is permitted in wilderness but it usually requires special conditions which restrict the location of occupancy of the surface. Similar requirements are also recommended in roadless recreation areas such as the Ten Lakes Scenic Area.

The alternatives were analyzed for their effect on oil and gas exploration and compared to PNV. The amount of area resulting in restricted occupancy conditions was used to evaluate the effect on oil and gas exploration.

3. Threatened and Endangered (T&E) Species Protection (Grizzly)

The value of maintaining or enhancing viable populations of a T&E species such as the grizzly bear is not included in PNV. The entire Ten Lakes area is located within Grizzly Situations 1-4 (Grizzly Management Situations are rated as to how crucial an area is to the bears livelihood, i.e., Grizzly Situation 1 is

extremely crucial while Grizzly Situation 4 is moderately crucial). Some land allocations provide either direct or indirect support for grizzlies by providing adequate security, forage, and/or cover. Other land allocations do not provide either direct or indirect support. The alternatives were analyzed for the amount of protection or support that was provided for the grizzly bear and the effect that support had on PNV. The acres of supportive land allocations were used to evaluate the effect on grizzlies.

4. Visual Quality Protection

The value of providing visual quality protection in sensitive areas such as the western edge of the study area, is not included in PNV. Visual quality is provided by land allocations which prescribe that management activities will not be visually evident to the casual observer.

This translates into visual quality objectives (VQO's) of "retention" and/or "partial retention." (A "preservation" VQO would also provide a high degree of visual quality protection.)

The alternatives were analyzed for the amount of visual quality protection that was provided in sensitive areas that were scheduled for timber harvest and the effect that had on PNV. The amount and proportion of suitable timberland allocated to retention and partial retention VQO were used to evaluate the effect on visual quality.

Summary Figure TL-3 on the following page, summarizes the nonpriced and priced benefits used to determine net public benefits.

Summary
Figure 11-3

SUMMARY OF NET PUBLIC BENEFITS
(In Descending Order from the Highest Present Net Value)

Indicators of Net Public Benefits Alternative	Priced Benefits		Nonpriced Benefits									
	Present Net Value	Opportunity Cost ^{1/}	Roadless Dispersed Recreation Opportunities			Oil & Gas Exploration Opportunities			T&E Species Protection		Visual Quality Protection	
			Area Allocated to Roadless Mgmt. Including Wilderness	Acres	Percent	Area Available for Snowmobile Use	Acres	Percent	Area Requiring Restricted Occupancy Conditions	Acres	Percent	Amount of Suitable Timberland Allocated to Retention & Par- tial Retention
Alt. A	2,385,000	0	16,400	46	54	19,500	17,400	48	22,700	63	7,500	40
Alt. D	2,088,000	297,000	18,800	50	82	29,400	26,300	73	33,000	92	12,100	73
Proposed Action	2,073,000	312,000	18,800	50	100	35,900	26,300	73	33,000	92	12,100	73
Alt. B	485,000	1,904,000	29,600	82	18	6,300	30,400	85	31,200	87	3,600	65
Current Direction (No Action)	481,000	1,904,000	16,400	46	100	35,900	25,000	70	30,900	86	3,000	53
Alt. C	74,000	2,311,000	35,900	100	0	0	35,900	100	35,900	100	0	--

^{1/} Opportunity costs are calculated as the difference between each alternative and the Maximum PNV Alternative (Alternative A).

III. AFFECTED ENVIRONMENT

This chapter provides a discussion, by resource, of the existing environment and a summary of the anticipated changes as a result of implementation of alternatives considered.

A. Timber

Of the 35,900 acres in the Ten Lakes Study Area, 19,400 acres are considered capable for timber production. Under the Current Direction (No Action) 5,700 acres would be scheduled for timber harvest. The Proposed Action will schedule 16,500 acres. Timber harvesting has been extensive in some of the drainages next to the Study Area with clearcutting as the primary harvest method.

Mountain pine and spruce bark beetle activity in the area is creating salvage opportunities of western white pine and spruce. All stands considered susceptible to the beetle (high risk stands) are expected to be infested within 2 to 3 years.

B. Facilities

There are a few logging roads within and adjacent to the boundary of the study area (Rich Creek, Foundation Creek, and Divide Creek). The allocations in the Current Direction (No Action) project a road system of approximately 32 miles total. The Proposed Action projects 69 miles of road.

C. Recreation

The Study Area has opportunities for hiking, nature study, camping, horseback riding, fishing, and hunting. The study area and the immediate vicinity receive much visitor use; approximately 9,200 visitor days in 1976, 13,600 visitor days in 1978, and 16,700 visitor days in 1981. Much of the use is in the form of nonmotorized dispersed recreation including hunting and fishing. Snowmobiling has been permitted in the Scenic Area since 1976 (from December 1, to April 15) and this form of use is increasing.

There are developed campgrounds at Therriault Lakes, immediately adjacent to the Study Area boundary, which provide a main access route into the area. The Current Direction (No Action) and Proposed Action will continue to provide similar recreation opportunities including snowmobile use.

D. Visual Resources (Viewing)

The western portion of the Study Area ("Burma Face") dominates the eastern half of the Tobacco Valley and is viewed from the town of Eureka and travelers on US Highway 93. Under the Current Direction (No Action) and the Proposed Action this area would be managed for maintaining the visual quality.

E. Wilderness

During RARE I and RARE II, the Ten Lakes was evaluated for wilderness using the 200-point quality Index Rating (where it received 140 points), the Northern Region 100-point system (where each segment of the area received 64, 44, and 50 points), and the 28-point Wilderness Attribute Rating (WARS), where the area received 20 points.

The reviewers concluded that the area rated high in naturalness and natural integrity, but that opportunities for solitude were limited in portions of the area because of existing roads and previous logging activity adjacent to the Study Area. The scenic "core area" (6,500 acres) is considered to have the highest wilderness quality and suitability.

The Current Direction (No Action) and the Proposed Action will manage this scenic "core area" as roadless to protect the primitive characteristics. An additional 10,000 acres of roadless management is also provided in both the Current Direction (No Action) and Proposed Action.

F. Wildlife and Fish

Common big game species include elk, moose, black bear, whitetail deer, and mule deer. Most of the area serves as late spring, summer, and fall range. It is estimated that the area supports between 40 to 60 elk. Grizzly bear sightings have been made in the area and virtually the entire Study Area is delineated as essential habitat for grizzly bear and Northern Rocky Mountain wolves. The small lakes and ponds support cutthroat and the streams support brook trout.

G. Minerals and Oil/Gas Exploration

Minerals

The area has a long history of mineral prospecting and development with the major minerals being copper, silver, and gold claims. Three patented mining properties within the study area total 99 acres. Most of the current interest is associated with copper deposits. Despite the historic and recent mineral activity in the area, the nonenergy mineral resources are considered to be minor in comparison to other parts of the Kootenai Forest.

Oil and Gas

The chance of oil and gas-bearing rock strata existing at depth beneath overthrust sheets in the study area is a geologic possibility. Recent oil and gas discoveries within the Fold and Thrust Belt (which runs through the Study Area) have occurred in Canada, Montana, Wyoming, and Utah, thus increasing probability of a successful find. Oil and gas leases have been issued to explore lands surrounding the Study Area, although no leases have been made on lands within the Study Area. Should positive results be obtained in adjacent areas, the Ten Lakes area could receive additional industry interest.

H. Protection

The 16,500 acres of high elevation, subalpine area is considered to be a low fire hazard area and is currently managed as roadless and is proposed to continue as roadless. The lower elevation, steeper slopes, especially along the western edge of the study area, adjacent to private land, are considered a moderate to high fire hazard. The Current Direction (No Action) does not schedule timber harvest or roading for this area. The Proposed Action schedules timber harvest and road construction which will provide access for fire protection and facilitate insect salvage.

I. Landownership

Three patented mining properties (99 acres) exist within the Study Area boundary, and the Kootenai Forest proposes to eventually acquire these properties, if at all possible. There are no other private lands within the Study Area boundary, although there are private lands immediately adjacent to the area.

J. Soil and Water

About 10,800 tons of sediment are produced annually as a result of natural occurrences. Road building opportunities scheduled in the study area under the Proposed Action is not expected to significantly increase the sediment production. Water quality is expected to remain high.

K. Economic and Social

The Eureka-Fortine (Tobacco Valley) area, in which the Ten Lakes Study Area is located, is a predominantly resource-based economy with timber and livestock (cattle) the primary industries. Fluctuations in the timber market and the seasonal nature of logging both have contributed to the high unemployment that Lincoln County has experienced. However, the recreational diversification of the economy in the Tobacco Valley area has offset somewhat the high unemployment in that local area.

Recent surveys have shown that people live in the local area primarily because of the natural environment and the advantages that the outdoors afford.

L. Other Biological and Social Environmental Factors

1. Cultural Resources

Prehistoric and historic sites have been identified and recorded in the Study Area. No sites are pending disturbance under the current wilderness study allocation. If future projects are undertaken, an inventory and evaluation will be performed.

2. Research Natural Areas (RNA's)

There are no existing or known potential RNA's in the Study Area.

3. Grazing

The estimated potential grazing capacity is 1,100 AUMs and all of it is transitory range.

IV. ENVIRONMENTAL CONSEQUENCES

Environmental consequences are the result of activities scheduled to implement a land management plan. The level of activities and thus the level of environmental effects, differs among alternatives. Some activities or programs do not change significantly between alternatives. These include: Cultural Resources Management and Range Management.

In addition none of the alternatives significantly provide opportunities for handicapped people or significantly contribute to RPA goals except wilderness which is discussed below.

The following sections discuss the items found to be the most impacting on other resources, and vice versa, specifically, wilderness management, minerals and oil/gas exploration, timber management, wildlife management, recreation management, and road construction.

A. Wilderness Classification and Management:

1. Effects on Wilderness

Four alternatives propose wilderness allocations in different sizes including 35,900 acres (Alternative C), 29,600 acres (Alternative B), 16,400 acres (Alternative A), and 6,500 acres (Alternative D). A wilderness classification would provide an additional wilderness area for northwest Montana. The Proposed Action recommends a nonwilderness designation.

2. Effects on Minerals Oil/Gas Exploration

Wilderness designation would result in additional expense for mineral and oil/gas exploration activities because of difficult access as a result of limited roads or no roads. Alternative C would result in the greatest additional expense. Alternative D would result in the least additional expense.

3. Effects on Protection

A wilderness designation would prohibit any possible timber salvage harvest of insect infested timber and reduce the ability to quickly respond to fires. Alternative C would have the most restriction on possible timber salvage and the ability to respond to fires. Alternative A would have the least restriction.

4. Effects on Recreation

Wilderness designation would prohibit motorized forms of recreation such as snowmobiling while encouraging nonmotorized recreation use such as hiking, horseback riding, and cross-country skiing. Alternative C would have the greatest effect on snowmobiling and Alternative D would have the least effect.

5. Effects on Timber

No timber would be harvested in wilderness areas. Alternative C would have the greatest effect on timber harvest. Alternative D would have the least.

6. Effects on Wildlife

Wilderness would provide desirable security for elk and grizzly. Alternative C would provide the highest level of elk and grizzly security. Alternative A would provide the least security.

7. Effect on Local Economies

Wilderness tends to provide less in terms of local economic benefits than does nonwilderness because of the local economic dependency on wood fiber. This is shown in projected return receipts to the States, employment, and total personal income. Alternative C provides the least employment, personal income and receipts to the States. Alternative A provides the most employment, income and return receipts.

B. Minerals and Oil/Gas Exploration and Associated Activities

1. Effects on Wilderness

Mineral exploration and development are permitted in existing and proposed wilderness, as well as wilderness study areas. Mitigation measures would be needed to reduce the impact of exploration on wilderness but full scale mineral development could result in a loss of the wilderness resource.

Oil and gas exploration activities could be permitted in wilderness areas but the surface occupancy would be restricted by location. This should minimize the effect on the wilderness resource.

2. Effect on Protection

Minerals and oil/gas exploration activities are generally compatible with salvage harvest and fire access because of the mutual need for road access.

3. Effect on Recreation

Oil and gas exploration would be restricted to specific locations in roadless areas. Mineral exploration could affect roadless areas if roads were required to implement the operating plan. Potential mineral exploration could have a slightly higher effect on the Proposed Action, compared to the Current Direction (No Action) because of an additional 2,400 acres of roadless management.

4. Effect on Timber

Timber management and mineral and oil/gas exploration are generally compatible. Some timber harvest scheduling problems could occur because of the need to compensate for the grizzly bear as required by the Endangered Species Act.

5. Effect on Wildlife

Mineral and oil/gas exploration activities are generally not compatible with wildlife management and special coordination requirements and stipulations would apply should activities occur within wildlife habitat. This would mitigate most effects on wildlife.

6. Effects on the Local Economy

Although the timing and magnitude of future oil and gas exploration and development are not predictable, it is generally agreed that increased activity will occur in the next 10 years. The effects to the local economy will depend on the level of activity and development. The effect will result in an increase in employment and total personal income, primarily and is considered to be a positive effect on the local economy. In addition, 50 percent of any royalties are returned to the states.

C. Timber Management and Associated Activities

1. Effect on Wilderness

Timber harvesting including road construction in presently unroaded areas generally precludes any future consideration for wilderness designation. The Proposed Action will preserve a wilderness option on 18,800 acres.

2. Effect on Minerals and Oil/Gas Exploration

There are no anticipated adverse impacts of timber activities on mineral and oil/gas exploration because the resources are generally compatible.

3. Effect on Protection

Timber management and its associated road construction are compatible with fire suppression. The Proposed Action projects 69 miles of road compared to 32 miles in the Current Direction (No Action). Burning slash created by timber harvest is necessary to reduce insect and disease problems and to reduce the possibility of uncontrolled wildfire. The alternatives with the most area scheduled for timber harvest generally require the most slash to be burned. The Proposed Action projects slash burning on 16,500 acres versus 5,700 acres in the Current Direction (No Action). Alternative C has no roads or slash burning.

4. Effect on Recreation

Timber management and associated road construction change roadless recreation opportunities to motorized recreation opportunities. The Proposed Action proposes 69 miles of road compared to 32 miles in the Current Direction (No Action).

Timber management and road construction can have the most significant effect on visual quality. Mitigation in the form of visual quality objectives (VQOs) are used to soften the visual impact of timber management. The Proposed Action allocates 12,100 acres of suitable timberland to retention and partial retention VQOs compared to 3,000 acres in the Current Direction (No Action).

5. Effect on Timber

Timber volumes expected under each alternative are based on the amount of capable timberland harvested and the intensity of the harvest activities. The Proposed Action schedules 16,500 acres for timber management compared to 5,700 acres in the Current Direction.

6. Effect on Wildlife and Fish

Coordination between timber harvesting and wildlife needs (including grizzly bears) is done in order to maintain big game habitat. With coordination, timber and wildlife are compatible. The Proposed Action provides more coordinated timber harvesting for wildlife than the Current Direction (No Action). No effect is expected on the existing fisheries.

7. Effects on the Local Economy

The wood products industry is the primary employer in Lincoln County, and timber is the major contributor to employment, total personal income, and return receipts to the State. The Kootenai also provides approximately one-half of the timber milled in the local area. The continued availability of the timber resource is a major concern of the local population. The Proposed Action provides higher timber yields over time than the Current Direction which results in a higher positive effect on the local economy.

D. Wildlife Management and Activities

1. Effects on Wilderness

No effects on wilderness are foreseen as a result of wildlife or threatened and endangered species (grizzly) management.

2. Effect on Minerals and Oil/Gas Exploration

Wildlife effects on minerals and gas/oil exploration are related to the special requirements and conditions that are placed on

these activities in wildlife habitat, especially grizzly bear habitat. Wildlife management prescriptions require a coordination of activities to assure that wildlife and fish habitats are not unduly disturbed during periods of critical wildlife and fish use such as calving and spawning. The Proposed Action requires 56 percent more coordination than the Current Direction (No Action).

3. Effect on Protection

Salvage harvest is not prohibited by wildlife allocations and thus the ability to deal with the mountain pine and spruce bark beetle epidemic is not impeded by wildlife management considerations.

4. Effect on Recreation

Wildlife are a primary reason people recreate on the Forest. Some motorized forms of recreation could be restricted seasonally as road restrictions are applied to protect wildlife values. The Proposed Action will have 25 more miles of road open than the Current Direction. Effects on the visual resource relate to spring and fall burning that will occur in wildlife habitat. The impacts would be short term. The Proposed Action will schedule wildlife burning on 50 percent more area than the Current Direction.

5. Effect on Timber

Timber and wildlife are generally compatible and wildlife allocations are usually accompanied by regulated timber harvesting along with mitigation measures to reduce impacts to wildlife. These measures can include timing of harvest to avoid critical wildlife use periods such as calving. Sometimes "delayed harvest" requirements are used to reduce impacts to grizzly bears, especially if mineral exploration is being proposed simultaneously.

6. Effect on the Local Economy

Effects of wildlife management on the local economy are related primarily to the recreational aspects such as hunting and fishing.

E. Recreation Management

1. Effects on Wilderness

Motorized recreation is not compatible with wilderness. Ten Lakes has had a history of snowmobile use which would be perpetuated in the Proposed Action. Snowmobile use would be prohibited in the wilderness proposals of Alternatives A, B, C, and D this could result in law enforcement problems from motorized violations of the wilderness boundary.

2. Effects on Minerals and Oil/Gas Exploration

The alternatives provide roadless recreation management areas in varying degrees which would require special considerations regarding minerals and oil/gas access. Mineral and oil/gas exploration is permitted in roadless recreation areas, but access would be restricted to protect recreation values by encouraging preliminary exploration by cross-country travel where terrain permits, and helicopter use elsewhere.

Alternatives B and C have the greatest effect on minerals and gas/oil exploration because of recreation management (including wilderness). Alternative A would have the least effect.

3. Effects on Protection

Opportunities to salvage dead or dying insect-infested timber are directly related to the type of recreation being managed for. Motorized forms of recreation (excluding snowmobiles) would facilitate salvage because of the associated road networks while roadless dispersed recreation (including wilderness) can limit the ability to salvage timber because of the lack of road access. Aerial logging systems are permitted for salvaging timber in all roadless management areas except wilderness, where no mechanized equipment is permitted.

Alternative A would have the least effect on timber salvage possibilities because of roadless dispersed recreation management.

4. Effects on Recreation

No effects on recreation are expected as a result of recreation management except on a particular user group. For example, some alternatives provide more motorized forms of recreation and this would effect the user groups that prefer the more primitive forms of motorized or nonmotorized recreation opportunities.

Alternative D and the Proposed Action would provide the most opportunities and favorable setting for motorized dispersed recreation. Alternatives B, C, and the Current Direction would provide the most opportunities and favorable settings for non-motorized dispersed recreation.

5. Effects on Wildlife and Fish

Recreation allocations such as roadless dispersed recreation and wilderness are generally compatible with wildlife. Direct effects on wildlife and fish come primarily from hunting and fishing.

6. Effects on Local Economy and Community Stability

Recreation use in the Ten Lakes Study Area is expected to increase over the next 50 years, regardless of the alternative implemented. Effects of recreation on the local economy are tied

to dollars spent on recreational activities and to the employment generated by recreation use. These local economic effects would take place in the service sector of the economy, i.e., restaurants, motels, service stations, etc.

Alternative D and the Proposed Action will generate the largest contribution to the local economy because of recreation related use.

F. Road Construction

1. Effects on Wilderness

Road construction is prohibited in wilderness areas. Roads adjacent to a wilderness area; however, can provide ready access which could lead to potential overuse at these access points. Use would need to be monitored to insure against overuse that could degrade wilderness values. Alternative C will require the most monitoring for potential overuse at access points. Alternative D should require the least monitoring.

2. Effects on Minerals and Oil/Gas Exploration

The presence of roads would not have an adverse effect on mineral and oil/gas exploration but would, in fact, facilitate exploration.

3. Effects on Protection

Road construction and access increase the potential for man-caused fires; however, roads increase initial attack capabilities and provide fuelbreaks. The existence of roads greatly facilitates the salvage of insect-infested timber which can deteriorate rapidly.

Alternative A will provide for the most access for fire protection and insect salvage.

4. Effects on Recreation

Road construction changes the recreation setting from a non-motorized to a motorized setting which, in turn, affects the type of recreation activities and user groups. For example, as access impacts wildlife habitat, the quality of the hunting recreational experience may decrease, but the maintenance of nonmotorized semiprimitive recreation setting can reduce this effect. Roads are perhaps the most noticeable feature on the landscape. Visual quality objectives establish guidelines for mitigating the visual impact of road construction.

5. Effects on Timber

Roads have an effect on timber by removing land from production but roads increase the opportunity for intensive timber management practices, salvage programs, and firewood gathering.

6. Effects on Wildlife

The presence or absence of roads affects elk security which, in turn, determines the quality of the habitat and the number of elk there will eventually be. One method of providing elk security is to close roads once the timber harvest activities are completed. Road closures can be seasonal as in summer range and winter range or they can be yearlong. Alternative A will have the highest number of road miles remaining open (40). The Proposed Action will have 25 more miles of road open than the Current Direction (No Action).

7. Effects on Local Economy and Community Stability

Roads and timber are interrelated. The economic benefits derived from timber harvesting, in terms of employment and total personal income, are almost entirely dependent on roads and road construction.

G. Effects on Lifestyles

Local Forest users are attracted to the Ten Lakes Scenic Area which is a popular roadless dispersed recreation area. The proposed plan perpetuates this roadless recreation area and expands it approximately 6 percent larger than in the Current Direction. Snowmobiling which is a popular local use is also continued in the Proposed Action.

H. Effects on Landownership

Three patented mining properties (99 acres) exist in the Ten Lakes Study Area and the Kootenai Forest wishes to eventually acquire these properties, if at all possible.

I. Short Term/Long Term Productivity

Short term uses are not encouraged at the expense of long term productivity. Measures have been used to insure the maintenance and enhancement of the environment and its long term productivity.

J. Irreversible/Irretrievable Commitment of Resources

No irreversible commitment of resources is recommended in the Ten Lakes MWSA. Irretrievable commitments have been made in timber production foregone in unregulated timber management areas and roadless management areas. The Proposed Action results in less irretrievable commitments than the Current Direction in that a higher proportion of capable timberland is brought under timber production in the Proposed Action. Irretrievable commitments have also been made in the roadless areas foregone where these areas are scheduled for timber harvest. The Proposed Action results in more roadless area foregone than the Current Direction.

K. Adverse Effects That Are Not Avoidable (Proposed Action)

The following unavoidable adverse effects could occur:

1. An adverse effect on scenic quality in some areas because of timber harvesting, prescribed burning, and road construction.
2. Foregone timber volumes because of insect epidemic losses.
3. Possible mineral exploration, the timing and magnitude of which cannot be predetermined.
4. Foregone wilderness options on unroaded lands scheduled for development.

L. Mitigation Measures to Reduce the Unavoidable Adverse Effects (Proposed Action)

1. Effects of development on visual quality will be mitigated by following the proposed visual management objectives.
2. Foregone timber volumes because of insect activity will be mitigated by prompt salvage, if at all possible and accessible.
3. Mineral exploration activities effects can be negotiated under the 1872 Mining Law Use Regulations (CFR 228).
4. Wilderness options are retained on those areas managed for roadless recreation (18,800 acres).

Summary Fig. TL-1

TEN LAKES MONTANA WILDERNESS STUDY AREA (PL 95-150)
COMPARISON OF ALTERNATIVES*
(Average Annual Results)

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt A	Alt B	Alt C	Alt D
WILDERNESS								
Recommended to Congress	Acres	1	0	0	16,400	29,600	35,900	6,500
Roadless Acres Recommended	Acres	1	16,400	18,800	0	0	0	12,300
Total Wilderness and Roadless Acres Recommended	Acres	1	16,400	18,800	16,400	29,600	35,900	18,800
TIMBER								
Base Sale Schedule	MMBF	1	1.1	0	1.1	1.1	0	0
		2	0.2	3.8	2.2	0.2	0	3.8
		3	0.5	3.5	8.2	0.5	0	3.5
		4	0	2.3	1.2	0	0	2.3
		5	0.2	1.8	0.5	0.2	0	1.8
Area Available for Timber Mgmt. & Harvest (Suitable)	Acres	1	5,700	16,500	18,600	5,500	0	16,500
Proportion of Total Capable Timberland Available for Mgmt. & Harvest (Regulated)	Percent	1	29	85	96	27	0	85
FACILITIES								
Local Road Construction/Reconstruction	Miles	1	1.0	0.3	0.5	1.0	0	0.3
		2	0.4	2.0	1.3	0.4	0	2.0
		3	1.1	2.0	7.7	1.1	0	2.0
		4	0	1.7	0.5	0.0	0	1.7
		5	0.3	0.3	0	0.3	0	0.3
Total Roads Eventually Constructed	Miles	5	32	69	106	32	0	69
RECREATION								
Non-Motorized Dispersed Recreation	RVD	1	3,700	3,400	2,100	3,700	3,800	4,500
		2	4,600	3,800	2,600	4,600	4,700	5,100
		3	6,300	4,600	3,500	6,400	6,500	6,100
		4	7,900	4,600	3,600	7,900	8,000	6,400
		5	9,700	4,900	2,700	9,700	9,800	6,500
Motorized Dispersed Recreation	RVD	1	2,000	7,000	3,000	2,000	0	5,200
		2	2,000	10,600	2,600	2,000	0	7,900
		3	2,500	13,600	3,300	2,600	0	10,200
		4	3,200	18,400	4,300	3,300	0	13,800
		5	2,700	24,500	4,200	2,800	0	18,400
Roadless Management Areas Including Wilderness	Acres	1	16,400	18,800	16,400	29,600	35,900	18,800
Area Available for Snowmobiling	Acres	1	35,900	35,900	19,500	6,300	0	29,400
	Percent	1	100	100	54	18	0	82

*Until Congress determines otherwise, the Ten Lakes Wilderness Study Area will be managed subject to existing private rights and uses to maintain the existing wilderness character and potential for inclusion in the National Wilderness Preservation System. No timber harvest, road construction, or other activities will be programmed under any Alternative until Congress makes a final decision on the management of the area.

TEN LAKES MONTANA WILDERNESS STUDY AREA (PL 95-150)
COMPARISON OF ALTERNATIVES
(Average Annual Results)

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt A	Alt B	Alt C	Alt D
<u>VISUAL QUALITY</u>								
Protective VQO's on Suitable Timberland	Acres	1	3,000	12,100	7,500	3,600	0	12,100
(Retention & Partial Retention VQO Combined)	Percent	1	53	73	40	65	---	73
Preservation VQO's	Acres	1	0	0	16,400	29,600	35,900	6,500
Retention VQO's	Acres	1	32,200	26,000	700	2,600	0	19,500
Partial Retention VQO's	Acres	1	1,000	4,900	6,800	1,000	0	4,900
Total Acres of Preservation, Retention, and Partial Retention VQO's	Acres	1	33,200	30,900	23,900	33,200	35,900	30,900
<u>WILDLIFE</u>								
Elk Population	Number	5	43	43	40	57	58	43
Supportive Grizzly Habitat	Acres	1	30,900	33,000	22,700	31,200	35,900	33,000
Total Road Restrictions Eventually Required	Miles	5	22	34	66	22	0	34
Total Road Miles Remaining Open	Miles	5	10	35	40	10	0	35
<u>OIL AND GAS EXPLORATION</u>								
Special Condition Areas Including Restricted Occupancy	Acres	1	28,900	32,800	22,400	31,200	35,900	32,800
Restricted Occupancy Area	Acres	1	25,000	26,100	17,400	30,400	35,900	26,100
<u>PROTECTION</u>								
<u>FIRE MANAGEMENT AREAS (FMA)</u>								
(FMA 2)	Acres	1	19,500	17,100	19,500	6,300	0	17,100
(FMA 3)	Acres	1	16,400	15,800	0	0	0	12,300
(FMA 4)	Acres	1	0	0	16,400	29,600	35,900	6,500
Total Acres (FMA 3&4)	Acres	1	16,400	15,800	16,400	29,600	35,900	16,800
<u>INSECT & DISAST SALVAGE</u>								
Proportion of Area Available for Salvage	Acres	1	35,900	35,900	19,500	6,300	0	29,900
	Percent	1	100	100	54	18	0	82

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt A	Alt B	Alt C	Alt D
ADMINISTRATION								
Total Budget Required to Implement (Operational & Capital Investments) (1978 \$)	Thousand Dollars	1 2 3 4 5	122 64 93 46 54	54 258 227 171 131	148 160 402 106 66	110 58 60 52 63	46 47 48 48 51	61 300 279 200 137
Operational Budget Required (1978 Dollars)	Thousand Dollars	1 2 3 4 5	102 61 92 46 54	54 198 221 167 128	127 147 391 104 65	89 56 66 52 62	46 47 48 48 51	61 240 273 196 134
Capital Investment Budget Required (1978 Dollars)	Thousand Dollars	1 2 3 4 5	20 3 1 0 0	0 60 6 4 3	21 13 11 2 1	20 3 1 0 0	0 0 0 0 0	0 60 6 4 3
Work Force Required	Person Years	1 2 3 4 5	4 2 3 2 2	2 7 8 6 4	5 6 14 4 2	3 2 2 2 2	2 2 2 2 2	2 10 10 7 5
LOCAL ECONOMY								
Changes in Total Employment from the 1980 Base Year	Person Years	1 2 3 4 5	+18 +5 +11 +4 +7	+6 +63 +60 +47 +43	+19 +32 +109 +20 +10	+18 +5 +11 +4 +8	0 0 0 0 0	+5 +62 +58 +44 +39
Changes in Total Personal Income from the 1980 Base Year (1978 dollars)	Thousand Dollars	1 2 3 4 5	+229 +57 +124 +32 +7	+43 +798 +739 +539 +465	+241 +420 +492 +247 +118	+229 +56 +175 +33 +76	0 0 0 0 0	+37 +787 +725 +518 +437
Returns to the States (1978 Dollars)	Thousand Dollars	1 2 3 4 5	30 8 24 0 35	0 153 167 229 179	35 80 413 148 37	30 8 24 0 35	0 0 0 0 0	0 153 167 229 179
ECONOMIC COMPARISONS								
Returns to the U.S. Treasury (1978 Dollars)	Thousand Dollars	1 2 3 4 5	120 32 95 0 139	0 613 669 914 717	138 320 1654 593 148	120 32 95 0 139	0 0 0 0 0	0 613 669 914 717
Present Net Value	Thousand Dollars	---	481	2073	2385	485	74	2080
Present Value Benefits	Thousand Dollars	---	672	2466	2784	688	177	2483
Present Value Costs	Thousand Dollars	---	191	393	399	203	103	396
Benefit/Cost Ratio	---	---	3.5	6.3	7.0	3.4	1.7	6.3
Opportunity Costs	Thousand Dollars	---	1904	312	0	1900	2311	297
OTHER OUTPUTS								
Potential Livestock Grazing	Animal Unit Months	1	1000	1000	900	1100	1100	1000

Summary
Figure TL-2

ALLOCATION ACREAGE SUMMARY OF TEN LAKES ALTERNATIVES

*Intensive

GROUP	ALTERNATIVE		CURRENT DIRECTION (NO ACTION)	PROPOSED ACTION	ALT. A	ALT. B	ALT. C	ALT. D
	ALLOCATION 1/							
RECREATION	Semi Prim. Non-Mtrzd. Recr.	16420	18,600	0	0	0	0	12,100
	Semi Prim. Mtrzd. Recr.	0	70*	0	0	0	0	70*
	Viewing	8060	7,500*	880	790	0	0	7,500*
WILDERNESS	Wild. Study-Ten Lakes	0	0	16,450	29,600	35,890		6,500
WILDLIFE & TIMBER	Big Game Winter Range	0	600	0	0	0	0	600
	Big Game Wntr Rge/Tbr	540	2,550	250	0	0	0	2,550
	Big Game Smr Rge/Tbr	0	470	3,300	370	0	0	470
	Wildlife/ Timber	0	0	950	0	0	0	0
	Grizzly/Timber	0	3,050	540	490	0	0	3,050
	Grizzly	3,900	0	0	0	0	0	0
SPECIAL	Timber Optimization	2,150	430	6,900	0	0	0	430
	Timber/Viewing	0	0	5,300	0	0	0	0
	Viewing Timber	2,970	2,400	1,320	4,640	0	0	2,400
	Min Use/Steep Slopes	0	220	0	0	0	0	220
	Limited Use Areas	1,850	0	0	0	0	0	0
	Total Acres	35,890	35,890	35,890	35,890	35,890		35,890

1/ See following page for brief description of allocations.

DESCRIPTION OF ALLOCATIONS ON SUMMARY FIGURE TL-2

SEMI-PRIMITIVE NONMOTORIZED RECREATION: Intent is to provide for the protection and enhancement of roadless dispersed recreation use. Snowmobile use is permitted.

SEMI-PRIMITIVE MOTORIZED RECREATION: Intent is to provide opportunities for motorized dispersed recreation in a natural appearing environment. At the higher management intensity, timber harvesting is planned to benefit the visual quality.

VIEWING: Intent is to maintain the landscape in a natural appearing setting. At the higher management intensity, timber harvesting is planned to benefit the visual quality.

WILDERNESS STUDY: Intent is to prevent loss of wilderness characteristics pending a review by Congress. All management activities are in a deferred status. Snowmobiling use is permitted pending Congress decision. Snowmobiling would be prohibited after a wilderness decision was made. The VQO is Preservation.

BIG GAME WINTER RANGE: Intent is to maintain or enhance habitat for the benefit of appropriate species.

BIG GAME WINTER RANGE/TIMBER: Intent is to maintain or enhance habitat for the benefit of appropriate wildlife species while managing the timber resource.

BIG GAME SUMMER RANGE/TIMBER: Intent is to maintain or enhance big game habitat while managing the timber resource.

WILDLIFE/TIMBER: Intent is to provide management for species richness, habitat diversity, and old growth timber-dependent species.

GRIZZLY/TIMBER: Intent is to maintain or enhance grizzly habitat while managing the timber resources.

TIMBER OPTIMIZATION: Intent is to produce high levels of timber production.

TIMBER/VIEWING: Intent is to manage for high levels of timber production while giving consideration to the visual quality.

VIEWING/TIMBER: Intent is to maintain an acceptable appearing landscape while managing the timber resource.

MINIMUM USE/STEEP SLOPES: Intent is to insure soil and water stability by minimizing disturbances to the surface.

LIMITED USE AREAS: Intent is to minimize disturbances to the surface.

Report and
Proposal

The Kootenai National Forest
Ten Lakes Montana Wilderness Study Act Area
(PL 95-150)

Type of Action

Legislative

Responsible
Federal Agency

Forest Service, USDA

Responsible
Official

Tom Coston,
Regional Forester
Northern Region
USDA Forest Service
Federal Building
Missoula, MT
59725

William E. Morden
Forest Supervisor
Kootenai National Forest
P.O. Box AS
Libby, MT
59923
406-293-6211

Abstract: This Report and Proposal describes the Proposed Action and alternatives, including a "no action" alternative, for managing the 35,900-acre Ten Lakes Montana Wilderness Study Area. The total land area lies within Lincoln County, Montana. The Proposed Action for Ten Lakes is nonwilderness. The alternatives provide different mixes of management prescriptions, resulting in different levels of outputs, goods, and services. The environmental consequences for the Proposed Action and alternatives are displayed.

Date of
Transmission to
Environmental
Protection Agency
and the Public

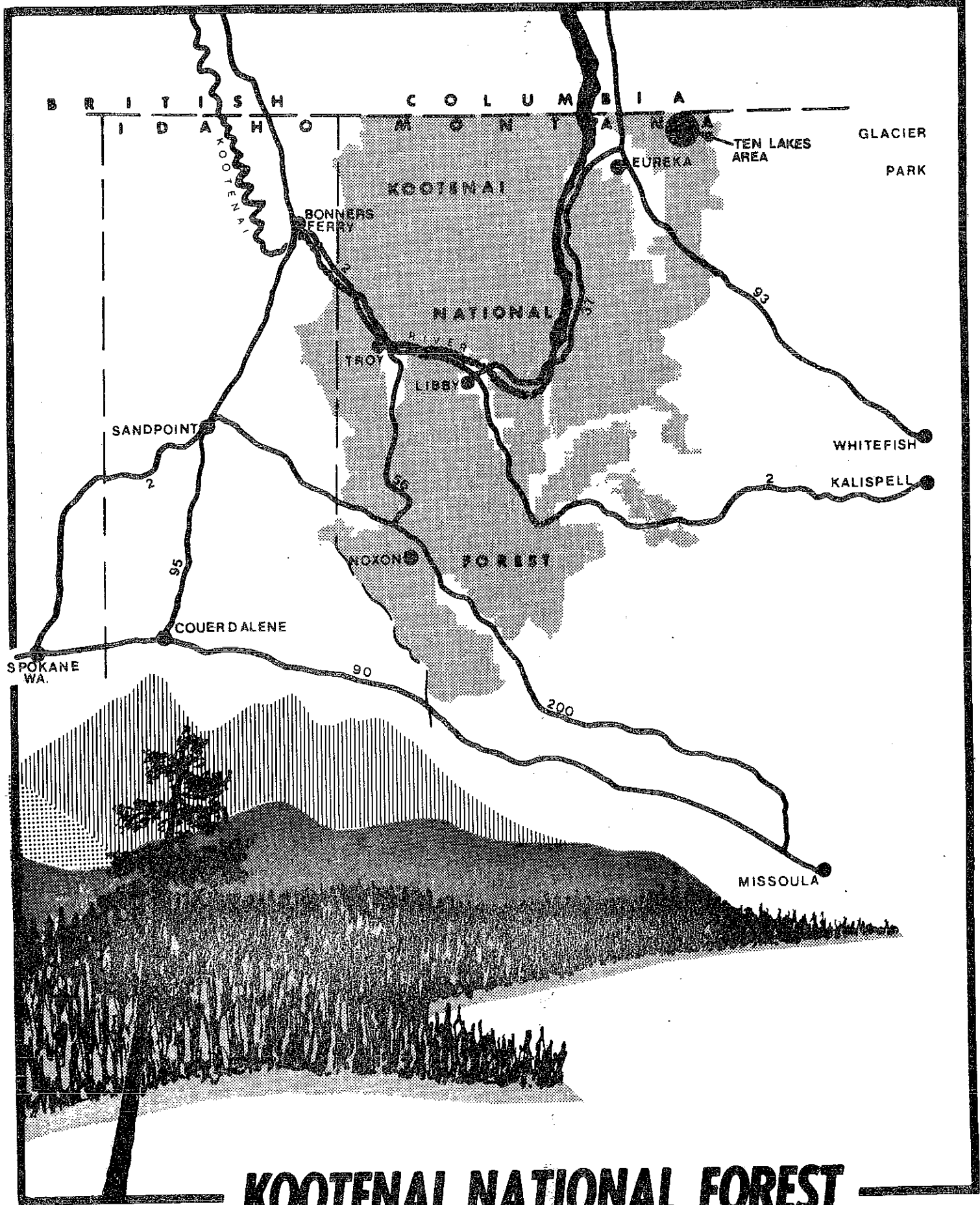
11/19/82

Public Comment
Period Ends

3/1/83

REPORT AND PROPOSAL FOR
TEN LAKES MONTANA WILDERNESS
STUDY ACT AREA

KOOTENAI NATIONAL FOREST
NORTHERN REGION
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE



KOOTENAI NATIONAL FOREST

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TEN LAKES

I. PURPOSE AND NEED

On November 1, 1977, Congress passed the Montana Wilderness Study Act (P.L. 95-150). The Act requires the Secretary of Agriculture to study and make recommendations to Congress on the wilderness suitability of nine separate National Forest areas in Montana containing 973,000 acres.

The nine Montana Wilderness Study Areas (MWSA) include the following areas:

	<u>Acres</u>	<u>Forest</u>
Big Snowies	102,300	Lewis & Clark
Bluejoint	61,400	Bitterroot
Hyalite-Porcupine-Buffalo Horn	151,000	Gallatin
Middle Fork Judith	92,200	Lewis & Clark
Mount Henry	23,400	Kootenai
Sapphires	99,300	Bitterroot
		Deerlodge
Taylor-Hilgard	387,900	Beaverhead
Ten Lakes	35,900	Kootenai
West Pioneer	148,200	Beaverhead
TOTAL	1,099,700	

Congress specified that the nine areas be studied using the procedures in Sec. 3(b) and 3(d) of the Wilderness Act (P.L. 88-577). This procedure included:

- Determining suitability for wilderness preservation.
- Public notice and hearings.
- Notice to Governor of Montana, county governments, Federal Departments and Agencies concerned.
- Sixty-day review period.
- Incorporate hearing and governmental agency and department comment in the report to Congress.

Two of the nine areas, Mt. Henry and Ten Lakes, are on the Kootenai National Forest. Mt Henry (23,400 acres) was addressed in a Regional Draft Environmental Impact Statement along with two other study areas in Montana (Mt. Henry, Taylor-Hilgard, and West Pioneer MWSA areas, September 1980). The Ten Lakes MWSA area was analyzed during the Kootenai Forest planning process.

The purpose of this Environmental Impact Statement is to display the environmental consequences that would result from implementing the proposed action for Ten Lakes, which is nonwilderness, as well as five other alternatives.^{1/}

^{1/} The recommendations are preliminary administrative recommendations which will receive further review and possible modification in the Offices of the Chief, the Secretary of Agriculture, and the President of the United States. Final decisions on wilderness designation have been reserved by the Congress to itself.

The alternatives, including the Proposed Action, discussed in this DEIS were formulated to respond in differing degrees to the issues that were identified during the MWSA public workshops in September 1979, as well as other public issues associated with the area. (All the alternatives also incorporated various laws and regulations that must be observed regardless of the alternative, such as soil and water protection, etc.)

Specifically, the public issues are:

- A. Timber - What is the timber potential of the area and where is timber management most appropriate?
- B. Recreation - What are the amount and kinds of recreation opportunities the area presently supports or is capable of supporting?
- C. Wildlife - What are the principal game, nongame, and threatened and endangered species and what are the opportunities for habitat improvement?
- D. Minerals - What is the hard rock, oil, and gas potential of the area and how should the area be managed for that potential?
- E. Wilderness Suitability - What are the wilderness attributes of the Study Area and to what extent is the area suitable for wilderness?
- F. Other Wilderness - What other Federal lands are classified wilderness, proposed as wilderness, or are under study as wilderness in the surrounding area and to what extent should they influence the classification of the study lands?
- G. Wilderness Quality - What consideration should be given to wilderness quality in determining which lands are proposed for wilderness?
- H. Wilderness Diversity - What consideration should be given to a diversified National Wilderness Preservation System when proposing lands for wilderness?
- I. Protection - What is the present condition and the potential for serious fire and/or insect and disease infestation; what are the current protection measures, and what measures are needed?
- J. Community Stability - What consideration should be given to maintaining current employment levels for dependent communities?
- K. Social Situation - What is the social structure of the communities and counties adjacent to the study area, and what potential effects should be considered?
- L. RPA - What resources do the areas contain and how should the study area's resource outputs be allocated toward meeting the RPA program goals?
- M. Opportunities for Physically Handicapped - How much need is there for the study lands to contribute to recreation opportunities for physically handicapped and elderly persons?

DEIS Organization

Chapter II, "Alternatives Including the Proposed Action." This chapter describes each alternative in terms of resource outputs and costs. The outputs and costs are displayed by individual resource as they relate to the public issues and management concerns. Also discussed is the role and development of the maximum and minimum resource potentials (called "benchmarks") and their use in the design of alternatives. The alternatives that were considered but eliminated from detailed study are also identified and discussed.

Chapter III, "Affected Environment." This chapter describes the present situation as well as future conditions created by the implementation of each alternative. The source of this description is the information presented in Chapters II and IV.

Chapter IV, "Environmental Consequences." This chapter discusses the environmental consequences of the activities that would be required to produce the outputs described in Chapter II. The consequences are discussed in terms of long and short term effects, and any irreversible and irretrievable commitment of resources that might be required.

References

Throughout the DEIS, references will be made to planning records which contain detailed discussions of the process or which contain data summaries too lengthy to include in this document. All planning records are available for review at the Kootenai Supervisor's Office.

Planning Area Description

The 35,900-acre Ten Lakes MWSA is located in the northeastern corner of the Forest, bordering Canada (see map). For a more complete description of the planning area see Chapter III.

II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. Alternative Formulation

1. Development of the Range of Alternatives

Alternatives for the Ten Lakes Wilderness Study Area were developed to respond to the intent of Public Law 95-150, the Montana Wilderness Study Act (MWSA). The intent is to analyze the wilderness suitability of the Ten Lakes MWSA and present to Congress a recommendation for wilderness, part wilderness or nonwilderness.

As the Kootenai National Forest Plan alternatives were modeled, Ten Lakes MWSA was also modeled in different degrees of wilderness or nonwilderness, whichever was consistent with the overall intent of the Forest-wide Alternative. For instance, in Forest Plan Alternative 3 which stressed commodity production, Ten Lakes was allocated to nonwilderness with timber and wildlife management where appropriate, and to other uses which contributed to the present net value. These other uses included roadless dispersed recreation. In Forest Plan Alternative 5, which stressed recreation, wildlife, and scenic values, the entire Ten Lakes, MWSA was allocated to wilderness. The following summarizes how each Forest Plan alternative allocated Ten Lakes.

Current Direction (No Action)^{1/}

This alternative allocated Ten Lakes to nonwilderness which coincides with the area's current long term management direction as determined through unit planning.

Alternative 1

The intent was to approximate the current management situation, as expressed in the Unit Plans, but a wider choice of management prescriptions were made available in the FORPLAN model. In this alternative, Ten Lakes was allocated to nonwilderness.

Alternative 2

The Ten Lakes MWSA was allocated to wilderness in this alternative (35,900 acres).

Alternative 3

The intent of this alternative was to produce only those outputs that generated a high dollar return while minimizing costs as much as possible. The Ten Lakes Study Area was nonwilderness.

^{1/} Current Direction, as used in this Report and Proposal, refers to the Unit Plan Allocation proposed in the Eureka-Grave Creek Planning Unit. The present status of the area is wilderness study, where no developmental activities will occur.

Alternative 4

In this alternative, wilderness was the allocation on both nonproductive lands and low to moderately productive timberlands. This was compatible with the intent of this alternative which was to produce high levels of Forest products to provide jobs and community stability. This resulted in about 28,900 acres being allocated wilderness.

Alternative 4a (Proposed Action) and Alternative 4a (Departure)

The goal of this alternative is to meet Regionals resource targets without disrupting local community stability. Ten Lakes was allocated to nonwilderness.

Alternative 5

The entire area was allocated to wilderness in this alternative (35,900 acres). This was consistent with the intent of emphasizing the nonmarket resources.

Alternative 6

In this alternative, wilderness was the allocation on the non-productive lands. This resulted in a wilderness of 16,400 acres and coincides with the "expanded scenic area" that is managed as roadless in the Current Direction (No Action) alternative.

Alternative 7

Wilderness was allocated on both nonproductive lands and low to moderately productive timberlands. This was compatible with the intent of the alternative which was to give equal emphasis to all uses and protect the nonmarket (or amenity) resources such as visual quality and roadless dispersed recreation. This resulted in about 29,600 acres being allocated wilderness.

Alternative 7a

The Ten Lakes MWSA was allocated to nonwilderness. This was consistent with the philosophy of the alternative, which was commodity oriented.

When the Forest Plan alternatives were summarized for how they allocated the Ten Lakes MWSA, the following results were observed.

<u>Alternative</u>	<u>Ten Lakes MWSA Allocation</u>
Current Direction (No Action)	Nonwilderness
Alternative 1	Nonwilderness
Alternative 2	Wilderness (35,900 acres)
Alternative 3	Nonwilderness
Alternative 4	Part wilderness (28,900 acres) Part nonwilderness
Alternative 4a (Proposed Action)	Nonwilderness
Alternative 4a (Departure)	Nonwilderness
Alternative 5	Wilderness (35,900 acres)
Alternative 6	Part wilderness (16,400 acres) Part nonwilderness
Alternative 7	Part wilderness (29,600 acres) Part nonwilderness
Alternative 7a	Nonwilderness

It became apparent that some common alternatives for the Ten Lakes MWSA could be extracted from the eleven different Forest-wide alternatives.

These common Ten Lakes alternatives were relabeled with the following letter designations.

<u>Ten Lakes MWSA Alternatives</u>	<u>Wilderness Recommendation</u>	<u>Forest-wide Alt. Derived From</u>
A	Part Wilderness (16,400 acres)	6 ^{2/}
B	Part Wilderness (approx. 29,000 acres)	4 and 7
C	All Wilderness (35,900 acres)	2 ^{2/} and 5
Current Direction (No Action)	Nonwilderness	Current Direction, Alternatives 1, 3, 4a (Proposed Action), 4a (Departure), and 7a

After reviewing the above four alternatives identified by the Forest-wide planning process, it became apparent that two other wilderness alternatives were available. One alternative was identified as Alternative D and consists of a 6,500-acre wilderness which coincides with the original Ten Lakes classified Scenic Area boundary.

^{2/} Alternatives 6 and 2 were eventually dropped as Forest-wide alternatives. See the Kootenai National Forest Plan DEIS for more details.

The other alternative was identified as Alternative E. This alternative proposed that the entire Ten Lakes MWSA be expanded to include additional areas that might provide a more identifiable boundary. It added approximately 6,500 acres of land for a total of approximately 42,000 acres.

The above results became the range for alternatives for Ten Lakes. Because the Ten Lakes MWSA is considered apart from the rest of the Forest in terms of the planning process, alternatives for the Ten Lakes MWSA can be fitted into any Forest-wide alternative. It then becomes a "mix and match" situation in which, for instance, a "full wilderness" Ten Lakes MWSA alternative could be included in a high development Forest-wide alternative.

2. Management Prescriptions

The NFMA regulations define management prescriptions as "management practices selected and scheduled for applications on a specific area to attain multiple use and other goals and objectives."

The interdisciplinary team (ID Team) reviewed the public issues and management concerns, used professional judgment, and consulted existing policy and legal requirements for guidance in developing multiple resources management prescriptions. This set of prescriptions portrays a broad range of management emphasis, intensities, management practices, standards, and guidelines. The management standards and guidelines needed to accomplish the goals of a prescription include the necessary mitigation and resource coordination measures that are required by existing laws, regulations, and policies.

To fully explore appropriate, practical ways of managing the Forest for a variety of uses, the interdisciplinary team developed a set of rules (that included economic and cost effectiveness considerations) to guide the assignment of management prescriptions to various parts of the Forest (referred to as "analysis area" in FORPLAN). Within the rules and limitations of the model, the team considered all management prescriptions appropriate for each of the analysis areas on the Forest. The team based their consideration of appropriateness on the land's inherent capability for resource production.

From this basic set of management prescriptions applied to the land, the Forest team developed yield and cost or effect tables for use in modeling each prescription in the linear program (FORPLAN). These prescriptions were used for the development of both benchmarks and alternatives after some initial screening analysis to determine cost effectiveness (see page II-5, Use of Economics in the Development of Alternatives).

More detailed information of the management practices, standards, and guidelines and the rules for their assignments to analysis areas is available for review at the Kootenai National Forest Supervisor's Office, Libby, Montana. A list of prescriptions used in the FORPLAN model appears in the Appendix.

3. The Computer Model (FORPLAN)

A large-scale linear programming model, FORPLAN, was the fundamental analytical tool used by the interdisciplinary team to simultaneously allocate land and schedule management practices over time. This model served two purposes in the Forest planning analysis.

The first purpose was to provide an objective basis for the optimum allocation and scheduling of management prescriptions for each analysis area. One or more prescriptions were selected for each of the analysis areas in each alternative. The optimal allocation and schedule of management prescriptions on analysis areas depend on the objective function and constraints on outputs and management practices used for each alternative. The analysis (allocation and scheduling) was carried out with the same objective function--the maximization of present net value for all alternatives considered in detail. Each alternative was generated by constraining the model to an optimal mix of resource outputs.

The second purpose was to provide an effective tool to quantify outputs, effects, costs, and acres allocated to management prescriptions over the entire Forest.

4. How Economics Were Used in the Formulation of Alternatives

Economic efficiency and cost efficiency are both required by NFMA (36 CFR 219) as components of Forest Plans and in the formulation of alternatives. The Kootenai National Forest took the following steps to incorporate economics into the formulation of alternatives.

First, cost and value coefficients (in 1978 dollars) were developed for each of the management prescriptions considered by the Interdisciplinary Team and used as the economic base data in FORPLAN.

Second, present net value per acre was determined for each management prescription, timing choice and intensity using FORPLAN. In addition, a comparative analysis was used to identify cost effective prescriptions for those land uses not producing quantified outputs, such as administrative sites. Those prescriptions meeting the test of economic and/or cost efficiency consistent with the need to address the issues and concerns were then incorporated into FORPLAN.

Some characteristics of this economic efficiency analysis are:

Difference in Present Net Value (PNV) between alternatives are due to difference in the goals and constraints of each alternative.

The goals of each alternative require the application of a unique set of constraints to the FORPLAN model with a common objective function of maximizing PNV.

The constraints lead to a unique set of consequences defined in terms of PNV, resource outputs, quantitatively and nonquantitatively measured effects, and include the degree of responsiveness to issues.

Variations in consequences form the basis for analysis, evaluation, and comparison of alternatives.

5. Economic Efficiency

The extensive economic efficiency analysis required by NFMA fulfills a three-fold purpose. First, as an indicator of economic efficiency, Present Net Value (PNV) provides a means to evaluate and compare alternatives by ranking PNV in a descending order. Second, a PNV analysis serves as a starting point for the analysis of Net Public Benefits (NPB), which contains both priced (PNV) and nonpriced (amenity) components. Third, NFMA requires that the most cost efficient combination of management activities be used to meet the objectives of each alternative.

The economic efficiency analysis requires calculation of PNV, costs and benefits. Present Net Value (PNV) is the discounted value of all benefits over the 50-year planning horizon minus the discounted costs for the same period.^{3/} Costs used in the analysis were defined for all budgeted Forest activities, including commodity and noncommodity outputs. Benefits (or prices), however, were used only on selected commodity or noncommodity outputs. These included timber and range (commodity) and recreation and wildlife^{4/} (noncommodity).

^{3/} A discount rate is used to calculate the present value of future costs and benefits. This real discount rate, equal to 4 percent, is adjusted for inflation and approximates the marginal return on after-tax new corporate capital. Use of this discount rate is based on the concept that no bias should be applied between the public and private sectors in long term investment policy.

^{4/} Recreation, wildlife, and range were valued only to expected use levels (demand). Any potential use over projected demand did not contribute to PNV, benefits, or costs.

6. Net Public Benefits (NPB)

Because dollar values cannot be assigned to all Forest resource outputs, an additional evaluation criteria called Net Public Benefits will be used. NPB is the combination of the priced (present net value) plus the nonpriced values (or benefits) considered.

Net Public Benefits represent the overall value to the Nation of all benefits, less all costs. The Interdisciplinary Team considered the priced and nonpriced components of net public benefits and the tradeoffs that occur, measured in terms of opportunities foregone (opportunity costs). For example, reducing PNV (due to constraints on the amount of area spatially available for timber production in grizzly habitat) to provide for a threatened and endangered species, may have a higher net public benefit than not giving up PNV and foregoing habitat for those species.

Alternatives were constructed to examine the tradeoffs and to enable decisionmakers to select a proposed action that maximizes net public benefit. Each nonpriced output was considered for all alternatives. The nonpriced net public benefit components used in the alternative formulation process are briefly presented below:

1. Dispersed recreation opportunities.
2. Oil and gas exploration opportunities.
3. Threatened and endangered species protection (grizzly bear).
4. Visual quality protection.

7. Development of Benchmarks (or Reference Points)

There was no specific benchmark analysis performed for Ten Lakes as part of the Analysis of the Management Situation (AMS). The benchmarks resulted from the development of a full wilderness and nonwilderness alternative for the Kootenai National Forest and a comparison to the known situation as described in the Affected Environment (Chapter III). Benchmarks are an indication of the resource supply potentials that are available from a specified area of National Forest land. Benchmarks were determined by the outputs of a full wilderness alternative and a nonwilderness alternative which produced either the maximum or minimum amount of various resources such as wilderness, timber, motorized dispersed recreation, etc.

The following chart displays the maximum and minimum wilderness and nonwilderness resource production for outputs associated with the public issues and the alternatives from which they were derived. The outputs displayed are average annual for the first decade unless otherwise indicated.

FIGURE TLII-4

Minimum and Maximum Outputs Associated With
Wilderness and Nonwilderness Alternatives

<u>Resource Item</u>	<u>Minimum</u>		<u>Maximum</u>	
Proposed Wilderness Acres	0	(Current & Proposed Action)	35,900 (43,500)	(Alt. C) (Alt. E)
Total Roadless Management Including Wilderness Acres	16,400	(Current tion & Alt. A)	(43,500)	(Alt. E)
Motorized Dispersed Recreation (RVD)	0	(Alt. C)	24,500	(Proposed Action)
Nonmotorized Dispersed Recreation (RVD) 5th Decade	2,700	(Alt. A)	9,800	(Alt. C)
Area Available for Snowmobiling (Percent)	0	(Alt. C)	100	(Current Direction & Proposed Action)
Capable and Available Land for Timber Management	0	(Alt. C)	19,430 (27,060)	(Alt. A) (Alt. E)
Timber Sale Volume (MMBF) 1st Decade	0	(Alt. C & Proposed Action)	1.1	(Current Direction Alts. A & B)
5th Decade	0	(Alt. C)	1.8	(Proposed Action & Alt. D)
Elk (Potential)	40	(Alt. A)	58	(Alt. C)
Supportable Grizzly Habitat (Acres)	22,700	(Alt. A)	35,900 (43,500)	(Alt. C) (Alt. E)
Oil and Gas Exploration Special Conditions Acres	22,400	(Alt. A)	35,900 (43,500)	(Alt. C) (Alt. E)
Grazing Potential (AUMs)	900	(Alt. A)	1,100	(Alts. B & C)
Budget Required to Implement (\$)	46,000	(Alt. C)	148,000	(Alt. A)
Present Net Value (\$)	74,000	(Alt. C)	2,385,000	(Alt. A)

8. Identification of Significant Opportunities

Based on analysis of the benchmarks, some resource potentials have been identified. These potentials when compared against each other and the existing situation described in Chapter III, indicate an opportunity for change. These opportunities are described by the resources involved.

Wilderness

An opportunity to add a minimum of 6,500 acres and a maximum of 35,900 acres to the National Wilderness Preservation System is evident.

Timber

The benchmarks indicate that there is some potential for timber in the long term although it is limited in the short term because of the age class of the timber.

Recreation

There is an opportunity to provide for approximately 24,500 RVD/year of motorized dispersed recreation and approximately 9,800 RVD/year of nonmotorized dispersed recreation. These two forms of recreation are mutually exclusive and one form cannot be maximized without minimizing the other. (The exception is snowmobiling in unroaded areas.) There are opportunities for a combination of both forms of recreation at less than their maximum potential.

Supportable Grizzly Habitat

There is an opportunity to provide a minimum of 22,700 acres and a maximum of 35,900 acres of supportive grizzly habitat as part of the Whitefish Range Grizzly Ecosystem.

Elk Population

There is an opportunity to provide habitat to support an elk population of approximately 40 minimum to a maximum of 58 elk.

Other resources such as livestock grazing display little or no opportunity to increase or decrease outputs.

B. Alternatives Eliminated from Detailed Study

Ten Lakes Alternative E

This alternative was envisioned as a way to get a more manageable wilderness boundary by expanding the Ten Lakes MWSA study area. This alternative proposed a wilderness classification for approximately 42,000 acres in the Ten Lakes area. Because of the unusual configuration of the area, with "fingers" of nondeveloped land surrounded on three sides by areas of past development, it was proposed that the developed areas could be closed off and included in a wilderness boundary, while letting the area revert to a wilderness setting.

Reasons for Elimination

The intent of Alternative E was to insure that the wilderness resource was not being constrained by the study area boundary. It was found, however, that if the study area borders had been expanded to include past development, the end result would not add to the primitive character of the area. This is because of the degrees of past developmental activities and the time needed to revert to a near-natural condition (approximately 30 years).

It was decided that the range of alternatives available within the Ten Lakes Study Area reflected reasonable wilderness options and that an alternative which expanded the study boundary would not add appreciably to this range. This alternative was thus eliminated from further detailed consideration.

C. Alternatives Considered in Detail

The six alternatives considered in this section comply with NFMA regulations (36 CFR 219) and with the intent of the Montana Wilderness Study Act.

All alternatives were designed with public involvement to resolve the issues and concerns in various ways. A range of alternatives was investigated including the Current Direction (No Action). Some issues were resolved completely while others were only partially resolved. The output tables display the varying degrees of issue resolution. (Figure TLII-1 and TLIV-1)

The Management prescriptions established sets of management practices with associated standards and guidelines. The following constraints were used for making FORPLAN computer analyses for each alternative considered in detail:

1. Nondeclining even-flow (NDY) constraint was used in all the Forest-wide alternatives that apply to Ten Lakes. This was done to insure a constant supply of wood products, now and in the future. This does not mean that timber harvest flows will always be nondeclining within the Ten Lakes Study Area. It means that it will be nondeclining on the entire Forest only. The ending-inventory constraints were used to insure the growing stock is not all harvested in the last decade of the FORPLAN model program. Prescription constraints were used after mapping each alternative to insure multiple and compatible uses. All alternatives were run using the maximum present net value objective function.
2. A minimum hydrologic constraint was applied to provide for basic soil and water protection. This constraint also provides for stream channel stability.
3. In addition to the above, constraints on the visual quality objectives, grizzly bear population and wilderness were applied in various degrees.

Ten Lakes Current Direction (No Action)

This alternative proposes that the Ten Lakes Wilderness Study Area be nonwilderness and managed in accordance with the current Unit Plan allocations which recommends the maintenance and expansion of the original 6,500-acre Ten Lakes Scenic Area. The allocations and land uses include a 16,400-acre roadless recreation area (which includes the original scenic area plus the recommended expansion), visual resource management, grizzly habitat management, and timber production. The intent of this alternative is to continue the existing resource use based on previous planning efforts and decisions which included public involvement.

Ten Lakes Alternative A

This alternative proposes 16,400 acres for wilderness classification out of the total 35,900 acres in the study area. The 16,400 acres consist of the original and recommended expansion of the Ten Lakes Scenic Area that was mentioned in the Current Direction alternative, above. The intent of Alternative A is to provide wilderness area on the lands presently being managed as roadless while providing high levels of commodity outputs on the remaining lands.

Ten Lakes Alternative B

This alternative proposes 29,600 acres for wilderness classification which includes both the nonproductive and the low to moderately productive timberlands. The intent of this alternative is to provide as much wilderness experience as possible while still providing commodity outputs on highly productive timberlands.

Ten Lakes Alternative C

This alternative proposes that the entire wilderness study area, 35,900 acres, be classified as wilderness. The intent is to provide a wilderness experience in the Ten Lakes Area that coincides with the wilderness study boundary.

Ten Lakes Alternative D

This alternative proposes that the original 6,500-acre Scenic Area be classified wilderness while the remainder of the wilderness study area be allocated to other uses similar to the Proposed Action. The intent is to provide a wilderness experience in the scenic "core area" which would be spacially removed as much as possible from many of the existing developments such as roads and timber harvesting.

Ten Lakes Proposed Action

This alternative proposes that the Ten Lakes Wilderness Study Area be nonwilderness. The allocations and land uses include an 18,600-acre roadless dispersed recreation area and other resource opportunities similar to Alternative A mentioned above.

D. Comparison of Alternatives

This section compares each alternative in terms of resource outputs. These resource outputs correspond to the public issues stated in Chapter I. Table TLII-1 at the end of this chapter, displays all of the outputs used for comparison, and should be used for reference when reviewing this section.^{5/}

1. Timber and Related Facilities

a. Timber

Each alternative proposes varying amounts of timber harvesting on nonwilderness commercial timberlands. Figure TLII-1 shows the expected average annual timber volumes for five decades. Alternatives A, D, and Proposed Action provide for the highest timber volume levels.

b. Facilities

Roads necessary to harvest the timber vary by alternative and are related to the amount and location of timber harvesting. Figure TLII-1 displays the amount of average annual local road construction/reconstruction expected in each alternative for each decade. Figure TLII-1 also displays the total eventual miles of road that will occur on-the-ground at the end of 50 years. Alternative A will produce the highest number of road miles on-the-ground in approximately 50 years.

2. Recreation Including Visual Quality

a. Motorized Recreation

Motorized recreation opportunities vary by alternative, depending on the amount of development expected to occur. Figure TLII-1 displays the average annual motorized recreation visitor days (RVD) expected by alternative for five decades. Alternatives D and Proposed Action provide the highest levels of motorized recreation.

b. Nonmotorized Recreation

Nonmotorized RVDs are associated with either wilderness or other forms of roadless management such as roadless dispersed recreation. Figure TLII-1 compares the average annual nonmotorized RVDs expected under each alternative for five decades. The Current Direction (No Action) and Alternatives B and C provide the highest level of nonmotorized recreation opportunities.

^{5/} It should be noted that pending Congress' decision regarding Ten Lakes, the wilderness character of the area will be maintained and no developments, such as timber harvest or road building, will occur.

c. Visual Quality

Each alternative provides varying amounts of visual quality protection, expressed as amounts of Visual Quality Objective (VQO) (see Glossary). The VQOs of "preservation," "retention," and "partial retention" provide the most protection of the visual resource. Figure TLII-1 displays the acres by individual VQOs as well as the total acres in the above mentioned categories. Alternative C provides for the highest level of visual quality protection.

3. Wildlife - Big Game and T&E Species

a. Elk

Figure TLII-1 displays the potential elk populations by alternative. Alternatives B and C project the highest elk populations.

b. Grizzly

The Ten Lakes MWSA is part of the Whitefish Range grizzly bear habitat ecosystem and consists of grizzly Situations 1-4. (See Appendix for descriptions of grizzly management situations.) Actual acres allocated either directly to grizzly bear management or to allocations compatible with grizzly bears, are displayed in Figure TLII-1. All allocations are considered except timber optimization, timber/viewing, and viewing/timber. (See Figure TLII-1 for allocation summary.) Alternative C provides the largest acreage of supportive grizzly habitat.

4. Grazing

Each alternative is expected to provide a potential of 900 to 1,100 AUMs of grazing, as shown in Figure TLII-1. All of this grazing potential is transitory range and is considered uneconomic.

5. Administration

a. Work Force

The National Forest work force expected to be needed under each alternative varies largely as a result of the developmental activities expected to occur. Figure TLII-1 shows the work force expected for five decades. Alternative A would require the largest work force.

b. Budget Required to Implement

The budgets displayed in Figure TLII-1 include both operational and capital investment monies for all decades. Capital investment monies are those funds needed to construct roads on timber sale areas where the stumpage price of the timber is inadequate to cover the road costs. Alternative C has no capital investment expenditures because all of the area would be wilderness. Alternative A projects the highest budget requirement in the first decade and for five decades.

6. Local Economics

a. Return Receipts to the State of Montana

Return receipts to the State of Montana are derived primarily from the sale of timber and are 25 percent of the returns to the US Treasury. (See next section.) Each alternative proposes a certain amount of timber harvest except Alternative C, the full wilderness alternative. Figure TLII-1 shows the average annual expected returns to the State for five decades. Alternative A projects the highest returns to the State in the first decade.

b. Total Employment

The local total employment situation is effected in terms of person-years of employment generated by each of the alternatives. Figure TLII-1 shows the average annual employment changes projected for five decades compared to the 1980 base year. Alternative A projects the highest change in total employment from the 1980 base year.

c. Total Personal Income

Contributions to total personal income expected under each alternative is tied to the expected employment. Figure TLII-1 shows the changes in total personal income for five decades compared to the 1980 base year. Alternative A projects the highest change in total personal income from the 1980 base year.

7. Economic Comparisons

a. Return Receipts to the US Treasury

Return receipts to the US Treasury are derived primarily from the sale of timber. Each alternative proposes a certain amount of timber harvest, except Alternative C, the full wilderness alternative. Figure TLII-1 shows the average annual expected returns to the US Treasury for five decades. Alternative A projects the highest returns to the US Treasury in the first decade.

b. Present Net Value (PNV)

Figure TLII-1 displays the present net value for each alternative in dollars.

Present Net Value (PNV) was calculated using a 4 percent real discount rate for each alternative. All values are in 1978 dollars. Each PNV is the net difference between the total discounted benefits and the total discounted costs for a 50-year period. Almost all of the PNV is the result of timber harvest values.

The PNV for Alternative D was derived from the Proposed Action because of the similar timber allocations. (Alternative D was a hand-formulated alternative and was not modeled in FORPLAN--see section 1 at the beginning of this chapter.) Alternative A has the highest PNV.

c. Opportunity Costs

The opportunity costs displayed in Figure TLII-1 are calculated as the difference between the PNV of the alternatives and the highest PNV alternative (Alternative A). Opportunity costs primarily represent costs (PNV foregone) of constraining the model to produce the nonpriced portion of net public benefits.

Most of the opportunity costs are due to the allocation of roadless management areas including wilderness. (Values for Alternative D are derived from the Proposed Action as explained in the discussion on PNV above.) Alternative C has the highest opportunity costs.

d. Present Value Benefits and Costs

The total discounted (present value) benefits and costs for the 50-year solution period for all alternatives are displayed in Figure TLII-1. The discounted benefits include both direct revenues such as timber and indirect benefits such as recreation and wildlife. (Values for Alternative D are derived from the Proposed Action as explained in the discussion on PNV above.) Alternative A has the highest present value benefits and costs.

e. Economic Efficiency Summary

The alternatives are displayed in the following figure in descending order from the highest PNV showing the discounted benefits, discounted costs, benefit-cost ratio, and opportunity costs. All of these values are calculated at a 4 percent discount rate.

FIGURE TLII-5

Indicators of Economic Efficiency by Alternative (4%)
(Thousand Dollars)

Alternatives	Present Net Value	Discounted Benefits	Discounted Costs	Benefits Costs	Opportunity Costs
A	2,385	2,784	399	7.0	0
D	2,088	2,483	396	6.3	297
Proposed Action	2,073	2,466	393	6.3	312
B	485	688	203	3.4	1,900
Current Direction	481	672	191	3.5	1,904
C	74	177	103	1.7	2,311

f. Comparison of Nonpriced Net Public Benefits

The alternatives were evaluated to determine which one produced the highest net public benefit. Net public benefit is an important objective since it permits the determination of the overall value to the public of all benefits less all costs. These benefits and costs occur regardless of whether they are priced Present Net Worth or nonpriced.

The Present Net Value component of each alternative is displayed in Figure TLII-1 and has been previously discussed. Each alternative is compared in this section as to how well it addresses the nonpriced components of net public benefit significant to Ten Lakes. (Other components, such as community stability and access, were found not to vary significantly between the alternatives.) As previously stated, the nonpriced components of net public benefits significant to Ten Lakes include:

1. Dispersed Recreation Opportunities

PNV accounts for the quantity of dispersed recreation use but the value or cost of displacing an established or desired use is not considered in FORPLAN.

The Ten Lakes Scenic Area is a popular spot for snowmobiling and this use is projected to increase. A wilderness designation would terminate any existing and projected snowmobile use. The alternatives were analyzed for their effect on snowmobile use and compared to the PNV. The amount of area available for snowmobile use is used to evaluate the effect on snowmobiling.

2. Oil and Gas Exploration Opportunities

The value of providing a minimum of restrictions on potential oil and gas exploration is not considered in FORPLAN. The Ten Lakes area is located within the western edge of the Overthrust Belt. This geologic formation is presently being prospected by the oil and gas industry and interest in leasing is apparent. Oil and gas leasing and exploration is permitted in wilderness but it usually requires restrictive conditions which limit the location of surface facilities, such as roads, drill pads, etc. Directional drilling may also be required. Similar requirements are also recommended in roadless recreation areas such as the Ten Lakes Scenic Area.

The alternatives were analyzed for their effect on oil and gas exploration and compared to PNV. The amount of area resulting in a restrictive occupancy condition was used to evaluate the effect on oil and gas exploration.

3. Threatened and Endangered (T&E) Species Protection (Grizzly)

The value of maintaining or enhancing viable populations of a T&E species, such as the grizzly bear is not included in PNV. The entire Ten Lakes area is located within grizzly Situations 1-4 (see Appendix for description of grizzly management situations). Some land allocations provide either direct or indirect support for grizzlies by providing adequate security, forage, and/or cover. Other land allocations do not provide either direct or indirect support. The alternatives were analyzed for the amount of protection or support that was provided for the grizzly bear and the effect that support had on PNV. The acres of supportive land allocations were used to evaluate the effect on grizzlies.

4. Visual Quality Protection

The value of providing visual quality protection in sensitive areas, such as the western edge of the study area, is not included in PNV. Visual quality is provided by land allocations which prescribe that management activities will not be visually evident to the casual observer.

This translates into visual quality objectives (VQOs) of "Retention" and/or "Partial Retention." (A "Preservation" VQO would also provide a high degree of visual quality protection.)

The alternatives were analyzed for the amount of visual quality protection that was provided in sensitive areas that were scheduled for timber harvest and the effect that had on PNV. The amount and proportion of suitable timberland allocated to retention and partial retention VQO were used to evaluate the effect on visual quality.

The following table (Figure TLII-3) summarizes the nonquantifiable and unquantifiable benefits used to determine net public benefits.

Fig TLI-3

SUMMARY OF TOTAL NET PUBLIC BENEFITS
(In Descending Order from the Highest Present Net Value)

Indicators of Net Public Benefits	Priced Benefits		Nonpriced Benefits									
	Present Net Value	Opportunity Cost	Roadless Dispersed Recreation Opportunities				Oil & Gas Exploration Opportunities		T&E Species Protection		Visual Quality Protection	
			Area Allocated to Roadless Mgmt. Including Wilderness	Area Available for Snowmobile Use	Area Requiring Restrictive Occupancy Conditions	Area Allocated in Support of Grizzly Bear	Amount of Suitable Timberland Allocated to Retention & Partial Retention					
Alternative	\$	\$	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Alt. A	2,385,000	0	16,400	46	19,500	54	17,400	48	22,700	63	7,500	40
Alt. D	2,088,000	297,000	18,800	50	29,400	82	26,300	73	33,000	92	12,100	73
Proposed Action	2,073,000	312,000	18,800	50	35,900	100	26,300	73	33,000	92	12,100	73
Alt. B	485,000	1,904,000	29,600	82	6,300	18	30,400	85	31,200	87	3,600	65
Current Direction (No Action)	481,000	1,904,000	16,400	46	35,900	100	25,000	70	30,900	86	3,000	53
Alt. C	74,000	2,311,000	35,900	100	0	0	35,900	100	35,900	100	0	--

1/ Opportunity costs are calculated as the difference between each alternative and the maximum PNW Alternative (Alternative A).

TEN LAKES MONTANA WILDERNESS STUDY AREA (PL 95-150)
COMPARISON OF ALTERNATIVES
(Average Annual Results)

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt A	Alt B	Alt C	Alt D
<u>WILDERNESS</u>								
Recommended to Congress	Acres	1	0	0	16,400	29,600	35,900	6,500
<u>TIMBER</u>								
Base Sale Schedule	MMBF	1 2 3 4 5	1.1 0.2 0.5 0 0.2	0 3.8 3.5 2.3 1.8	1.1 2.2 8.2 1.2 0.5	1.1 0.2 0.5 0 0.2	0 0 0 0 0	0 3.8 3.5 2.3 1.8
<u>FACILITIES</u>								
Local Road Construction/ Reconstruction	Miles	1 2 3 4 5	1.0 0.4 1.1 0 0.3	0.3 2.0 2.0 1.7 0.3	0.5 1.3 7.7 0.5 0	1.0 0.4 1.1 0.0 0.3	0 0 0 0 0	0.3 2.0 2.0 1.7 0.3
Total Roads Eventually Constructed	Miles	5	32	69	106	32	0	69
<u>RECREATION</u>								
Non-Motorized Dispersed Recreation	RVD	1 2 3 4 5	3,700 4,600 6,300 7,900 9,700	3,400 3,800 4,600 4,800 4,900	2,100 2,600 3,500 3,600 2,700	3,700 4,600 6,400 7,900 9,700	3,800 4,700 6,500 8,000 9,800	4,500 5,100 6,100 6,400 6,500
Motorized Dispersed Recreation	RVD	1 2 3 4 5	2,000 2,000 2,500 3,200 2,700	7,000 10,600 13,600 18,400 24,500	3,000 2,600 3,300 4,300 4,200	2,000 2,000 2,600 3,300 2,800	0 0 0 0 0	5,200 7,900 10,200 13,800 18,400
Roadless Management Areas Including Wilderness	Acres	1	16,400	18,800	16,400	29,600	35,900	18,800

TEN LAKES MONTANA WILDERNESS STUDY AREA (PL 95-150)
COMPARISON OF ALTERNATIVES
(Average Annual Results)

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt A	Alt B	Alt C	Alt D
<u>VISUAL RESOURCE MGMT.</u>								
Preservation VQO's	Acres	1	0	0	16,400	29,600	35,900	6,500
Retention VQO's	Acres	1	32,200	26,000	700	2,600	0	19,500
Partial Retention VQO's	Acres	1	1,000	4,900	6,800	1,000	0	4,900
Total Acres of Preservation, Retention, & Partial Retention VQO's	Acres	1	33,200	30,900	23,900	33,200	35,900	30,900
<u>WILDLIFE</u>								
Elk Population	Number	5	43	43	40	57	58	43
Supportive Grizzly Habitat	Acres	1	30,900	33,000	22,700	31,200	35,900	33,000
<u>ADMINISTRATION</u>								
Total Budget Required to Implement (Operational & Capital Investments) (1978 Dollars)	Thousand Dollars	1	122	54	148	110	46	61
		2	64	258	160	58	47	300
		3	93	227	402	68	48	279
		4	46	171	106	52	48	200
		5	54	131	66	63	51	137
Operational Budget Required (1978 Dollars)	Thousand Dollars	1	102	54	127	89	46	61
		2	61	198	147	56	47	240
		3	92	221	391	66	48	273
		4	46	167	104	52	48	196
		5	54	128	65	62	51	134
Capital Investment Budget Required (1978 Dollars)	Thousand Dollars	1	20	0	21	20	0	0
		2	3	60	13	3	0	60
		3	1	6	11	1	0	6
		4	0	4	2	0	0	4
		5	0	3	1	0	0	3
Work Force Required	Person Years	1	4	2	5	3	2	2
		2	2	7	6	2	2	10
		3	3	8	14	2	2	10
		4	2	6	4	2	2	7
		5	2	4	2	2	2	5

TEN LAKES MONTANA WILDERNESS STUDY AREA (PL 95-150)
COMPARISON OF ALTERNATIVES
(Average Annual Results)

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt A	Alt B	Alt C	Alt D
<u>LOCAL ECONOMY</u>								
Changes in Total Employment from the 1980 Base Year	Person Years	1	+18	+ 6	+ 19	+18	0	+ 5
		2	+ 5	+63	+ 32	+ 5	0	+62
		3	+11	+60	+109	+11	0	+58
		4	+ 4	+47	+ 20	+ 4	0	+44
		5	+ 7	+43	+ 10	+ 8	0	+39
Changes in Total Personal Income from the 1980 Base Year (1978 Dollars)	Thousand Dollars	1	+229	+ 43	+241	+229	0	+ 37
		2	+ 57	+798	+420	+ 56	0	+787
		3	+124	+739	+492	+175	0	+725
		4	+ 32	+539	+247	+ 33	0	+518
		5	+ 7	+465	+118	+ 76	0	+437
Returns to the States (1978 Dollars)	Thousand Dollars	1	30	0	35	30	0	0
		2	8	153	80	8	0	153
		3	24	167	413	24	0	167
		4	0	229	148	0	0	229
		5	35	179	37	35	0	179
<u>ECONOMIC COMPARISONS</u>								
Returns to the U.S. Treasury (1978 Dollars)	Thousand Dollars	1	120	0	138	120	0	0
		2	32	613	320	32	0	613
		3	95	669	1654	95	0	669
		4	0	914	593	0	0	914
		5	139	717	148	139	0	717
Present Net Value	Thousand Dollars	---	481	2073	2385	485	74	2080
Present Value Benefits	Thousand Dollars	---	672	2466	2784	688	177	2483
Present Value Costs	Thousand Dollars	---	191	393	399	203	103	396
Benefit/Cost Ratio	---	---	3.5	6.3	7.0	3.4	1.7	6.3
Opportunity Costs	Thousand Dollars	---	1904	312	0	1900	2311	297
<u>OTHER OUTPUTS</u>								
Potential Livestock Grazing	Animal Unit Months	1	1000	1000	900	1100	1100	1000

Figure TLII-2

ALLOCATION ACREAGE SUMMARY OF TEN LAKES ALTERNATIVES

*Intensive

GROUP	ALTERNATIVE ALLOCATION 1/	CURRENT DIRECTION (NO ACTION)	PROPOSED ACTION	ALT. A	ALT. B	ALT. C	ALT. D
RECREATION	Semi Prim. Non-Mtrzd. Recr.	16420	18,600	0	0	0	12,100
	Semi Prim. Mtrzd Recr.	0	70*	0	0	0	70*
	Viewing	8060	7,500*	880	790	0	7,500*
WILDLIFE & WILDERNESS	Wild. Study-Ten Lakes	0	0	16,450	29,600	35,890	6,500
	Big Game Winter Range	0	600	0	0	0	600
	Big Game Wntr Rge/Tbr	540	2,550	250	0	0	2,550
	Big Game Smr Rge/Tbr	0	470	3,300	370	0	470
SPECIAL	Wildlife/ Timber	0	0	950	0	0	0
	Grizzly/Timber	0	3,050	540	490	0	3,050
	Grizzly	3,900	0	0	0	0	0
	Timber Optimization	2,150	430	6,900	0	0	430
	Timber/Viewing	0	0	5,300	0	0	0
	Viewing Timber	2,970	2,400	1,320	4,640	0	2,400
	Min Use/Steep Slopes	0	220	0	0	0	220
	Limited Use Areas	1,850	0	0	0	0	0
	Total Acres	35,890	35,890	35,890	35,890	35,890	35,890

1/ See Appendix for brief description of Mgmt. Prescriptions.

III. AFFECTED ENVIRONMENT

This chapter discusses the resource situation in the Ten Lakes Study Area and the changes in the environment that could be expected to occur if an alternative were implemented. The resources discussed relate to the issues identified for the area.

A. Resource Descriptions

1. Timber

Of the 35,900 acres in the Ten Lakes Study Area, 19,400 acres are considered capable for timber production. Under the Current Direction (No Action) allocations, approximately 5,700 acres (29 percent) could be scheduled for timber harvest. Acres allocated to timber production include those in timber management and wildlife habitat management, such as big game winter range. Timber harvesting has been extensive in some of the drainages adjacent to the Study Area with clearcutting as the primary harvest method. Within the Study Area itself, timber harvesting methods would have to be generally limited to skyline or aerial harvest because of the slope steepness.

Ten Lakes tends to have proportionately less commercial land than the Forest as a whole. Its commercial land tends to be less economical in the short term, at least, due to proportionately more breaklands with younger trees than the rest of the Forest. Even the flatter terrain tends to have trees which are a bit younger.

Mountain pine beetle and spruce bark beetle activity in the area has created some salvage opportunities, especially of western white pine and spruce. All high risk stands (older trees that have become susceptible to insects such as the mountain pine beetle) are expected to be infested within the next 2 to 3 years because of insect infestations in the north fork of the Flathead River, approximately 10-15 air miles east of the study area. There are approximately 5,600 acres of western white pine and spruce susceptible to future insect attack.

Expected Changes in the Environment

Limited timber harvest activity would take place the first decade under the Current Direction (No Action) alternative.

If the Proposed Action were implemented, the timber harvest emphasis would be on salvage, such as western white pine and spruce in the first decade. The Burma Face (western) portion of the study area would be scheduled for harvest over the next 50 years, with some timber harvesting and road construction activities possibly being visible from Tobacco Valley.

The Proposed Action would schedule approximately 16,500 acres of the capable timberland (85 percent) for timber harvest. Alternative C would not schedule any timber harvesting within the study area. Alternative A would schedule the largest amount of land (18,600 acres) for timber harvesting and Alternative B would schedule the least. Alternative D would be the same as the Proposed Action.

2. Facilities (Roads)

There are a few logging roads within the study area boundary (on the edge) in the Rich Creek, Foundation Creek, and Divide Creek drainages.

Expected Changes in the Environment

The allocations in the Current Direction (No Action) project a road system to reach portions of the area scheduled for timber harvest., resulting in about 32 miles of road eventually being constructed. If the Proposed Action is implemented approximately 69 miles of road would eventually be constructed.

Alternative A proposes the highest number of eventual roads (106 miles) and Alternative C proposes the least (0 miles).

Alternative D is similar to the Proposed Action (69 miles) and Alternative B is similar to the Current Direction (No Action)--32 miles.

3. Recreation

The original Ten Lakes Scenic Area was first established in 1964 by the Regional Forester under Federal Regulations II-3, and comprised approximately 6,500 acres. Subsequent allocations made during the Current Direction have recommended the expansion of the original Scenic Area to around 16,000 acres. The "expanded" scenic area as well as the original scenic area has opportunities for hiking, nature study, camping, horseback riding, fishing, and hunting. The Ten Lakes "expanded" scenic area including the adjacent campgrounds (outside the wilderness study area) receives much visitor use; approximately 9,200 visitor days in 1976, 13,600 visitor days in 1978, and 16,700 visitor days in 1981. Much of the use is in the form of nonmotorized forms of dispersed recreation, including hunting and fishing. Snowmobiling has been permitted in both the original and expanded Scenic Area since 1976 (from December 1, to April 15) and this form of use is increasing.

There are developed campgrounds at Therriault Lakes, immediately adjacent to the Study Area boundary, which provide a main access route and jump-off point into the scenic area.

There are many small lakes and ponds scattered throughout the Study Area including Bluebird, Rainbow, and Wolverine Lakes, all of which support cutthroat trout. Unique features of the area include Therriault Pass which is a prominent glacial feature, together with rock outcroppings, snowslide areas, and a number of prominent peaks. There is a 31-mile trail system which makes the area accessible to both hikers and horseback riders. Much of this trail system is along the open ridgetops, which affords long panoramic views including vistas into Glacier National Park, approximately 35 air miles to the east. Camping opportunities are numerous and the small lakes and streams provide an adequate water supply for campers.

Expected Changes in the Environment

The primitive, roadless character of the original core and expanded scenic area would be maintained under all the alternatives. Additional roaded recreation opportunities would exist in the Proposed Action and Alternatives A and D in areas scheduled for timber harvesting.

The developed campgrounds adjacent to the study area would be maintained in all alternatives. Snowmobile use would be curtailed in the wilderness alternatives (A, B, C, and D). In the Current Direction (No Action) and Proposed Action, snowmobiling would be allowed throughout the area.

4. Visual Resource (Viewing)

The western portion of the Study Area ("Burma Face") dominates the eastern half of the Tobacco Valley and is viewed from the town of Eureka and travelers on U.S. Highway 93.

Expected Changes in the Environment

Under the Current Direction allocations, this area would be managed for maintaining the viewing quality and no timber harvesting would be permitted. Under the Proposed Action, timber harvesting would be permitted, if it can still maintain the visual quality of the "Burma Face." Alternative A would result in the most visible changes of all the alternatives.

5. Wilderness

The topography within both the Ten Lakes original and expanded Scenic Area is mountainous, with talus slopes, rock outcroppings, and bare ridges common in the upper elevations. Prominent mountain peaks are Ksanka and Independence in addition to Poorman and Green Mountain and St. Clair Peak, which surrounds an inner core area. Subalpine basins with clear lakes, beautiful mountain meadows with an abundance of flowers, and gnarled veteran alpine

larch and whitebark pine, make this "core" an area of scenic beauty. The lower elevations of the study area contain commercial forests.

Predominant timber species in the subalpine basins where the timber quality is poor are Engelmann spruce, subalpine fir, whitebark pine, lodgepole pine, and alpine larch. The growing season is very short. Snow depth usually exceeds 12 feet.

The Ten Lakes Wilderness Study Area was evaluated during the RARE I and RARE II processes. Under the RARE I Quality Index Rating, the Ten Lakes original Scenic Area or "core" area, was rated at 140 (out of a possible 200 points). This was one of the highest rated areas on the Kootenai National Forest, comparing favorably with the Cabinet Mountains Wilderness which was rated at 154. The remainder of the Study Area received a rating of 119. (When rated, the area was called Krinkehorn-Gibraltar-Mt. Wam Roadless Area RARE I No. 170.)

Under the Northern Region 100-point system, only the roadless area outside of the "core" Scenic Area (RARE I No. 170) was rated. The configuration of this area is composed of "lobes" or segments which are termed the northwest, south, and the northeast and which were evaluated separately. Under the 100-point system, the northwest segment was rated at 64, the southern segment was rated 44, and the northeast segment was rated 50.

Under the 28-point Wilderness Attribute Rating used during RARE II, the entire Ten Lakes Wilderness Study Area was rated at 20.

The reviewers concluded that the area rated high in naturalness and natural integrity, but that opportunities for solitude were limited in portions of the area because of existing roads and previous logging activity adjacent to the Study Area.

Several existing and proposed wildernesses are in the general proximity to the Ten Lakes Study Area. Following is an acreage summary of the areas which are identified on the accompanying map:

Figure TLIII-1

<u>Map Area</u>	<u>Name of Wilderness</u> <u>Identifi- or Proposed Wilder-</u> <u>cation</u> <u>ness Area</u>	<u>Agency</u>	<u>Acres</u>	<u>Status</u>	<u>Air Miles From</u> <u>Ten Lakes</u>
A	Bob Marshall	Forest Service	1,009,400	Wilderness	120
	Additions to	Forest Service	102,100	Admin.	120
	Bob Marshall			Endorsed	
B	Cabinet Mountain	Forest Service	94,300	Wilderness	65
	Additions to	Forest Service	15,600	Admin.	65
	Cabinet Mountain			Endorsed	
C	Glacier Park Pro-	National Park	927,600	Admin.	35
	posed Wilderness	Service		Endorsed	
D	Great Bear	Forest Service	290,600	Wilderness	80
E	Mission Mountains	Forest Service	73,000	Wilderness	120
F	Scapegoat	Forest Service	239,200	Wilderness	150
	Additions to	Forest Service	38,300	Admin.	150
	Scapegoat			Endorsed	
G	Scotchman Peak	Forest Service	74,500	Admin.	75
	Proposed Wilderness			Endorsed	
H	Selkirk Crest	Forest Service	22,800	Admin.	85
	Proposed Wilderness			Endorsed	
I	Salmo Priest	Forest Service	42,100	Admin.	105
	Proposed Wilderness			Endorsed	
TOTAL ACRES			2,930,500		

Expected Changes in the Environment

The wilderness resource would not be maintained in the Current Direction (No Action) and the Proposed Action. The Current Direction (No Action) and Proposed Action would maintain the primitive characteristics of the area but by allowing snowmobile use, would not maintain a true wilderness setting.

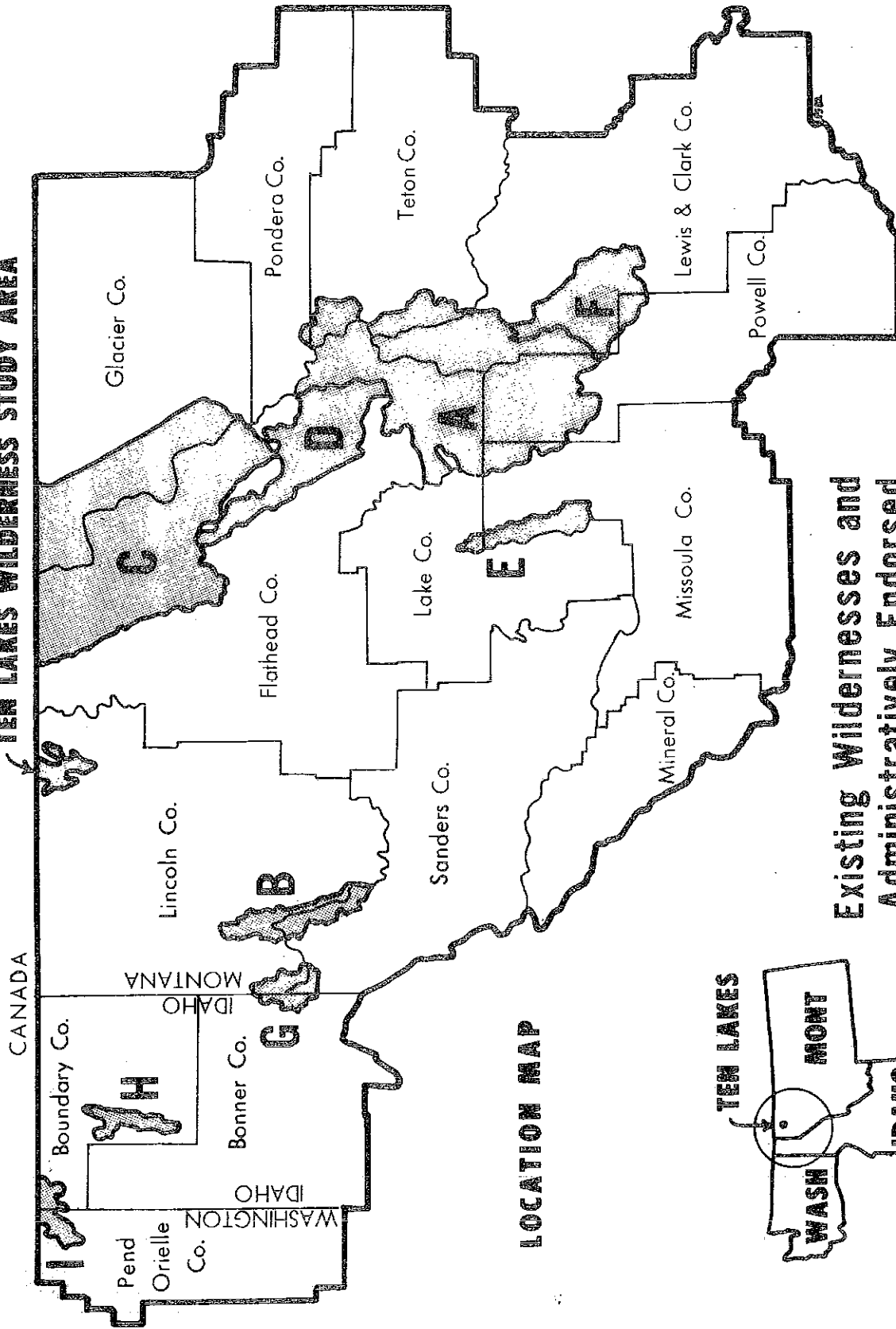
No acreage additions would be recommended to the National Wilderness Preservation System under the Current Direction (No Action) or the Proposed Action alternatives. Alternatives A, B, C, and D recommend varying amounts of wilderness.

6. Wildlife and Fish

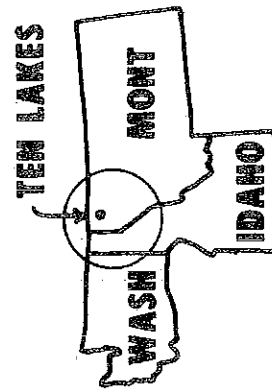
The Ten Lakes Study Area is characterized by a broad diversity of habitats ranging from gentle, forested foothills, to glaciated alpine basins. This diversity of habitats is reflected in a diverse wildlife community where virtually all species groups are represented.

Common big game species include elk, moose, black bear, whitetail deer, and mule deer. Most of the area serves as late spring, summer, and fall range. Small parcels of winter range totalling less than 500 acres border private lands on the southwest boundary of the area. Some evidence indicates elk winter in Canada in lower Wigwam and Weasel Creeks. It is estimated that the area supports between 40 to 60 elk.

TEN LAKES WILDERNESS STUDY AREA



LOCATION MAP



Existing Wildernesses and
Administratively Endorsed
Wilderness Proposals

(Forest Service & National Park Service)

Ten Lakes is part of the Whitefish Range Grizzly ecosystem and virtually the entire Study Area is delineated as habitat for grizzly bear and Rocky Mountain Wolves. Grizzly bear sightings have been made in the area. Management for those species entails maintenance of food sources, maintenance of relatively large undisturbed areas, and limitation of conflict with man.

High elevation species such as Clark's nutcrackers, hoary marmots, pika, and grey-crowned rosy finches are relatively common to the study area.

Wolverine, while not common, have been seen regularly.

Lower elevation timber stands support numerous species of song birds; raptors such as goshawks and cooper's hawks and cavity-dependent species such as pileated woodpeckers, northern flying squirrels and American kestrels.

Riparian zones support species such as water ouzels, belted kingfishers, and occasionally harlequin ducks. The small lakes and ponds scattered throughout the area support cutthroat trout. All the lakes have limited productivity due to the short growing season and cold winter temperature. Overall, the area supports a rich diverse wildlife community with a relative abundance of species characteristic of pristine, undeveloped habitats.

Expected Changes in the Environment

Little change is expected in the wildlife diversity in the area under the Current Direction (No Action) or the Proposed Action Alternatives. Acres of habitat managed for grizzly will increase under the Proposed Action. Wildlife and timber harvesting coordination will be made in areas where harvesting is scheduled. Alternative A will cause an eventual decrease in the elk population because of less emphasis on big game management. Alternatives B, C, and D will provide for adequate wildlife protection. The lakes may require heavier stocking, if use continues as projected.

7. Minerals and Oil Gas Exploration

Minerals

Minerals occur primarily in copper-bearing quartz veins. Several prospects in the Poorman Mountain-Independence Peak area of the Whitefish Range have intercepted copper-bearing quartz veins. These deposits occur as veins and veinlets of quartz in fractures within the Purcell Basalt or along the interface between the basalt flow and the underlying and overlying Belt metasedimentary rocks. Copper and other sulphide minerals occur within the quartz vein and carry both silver and gold. These deposits average from a few to several percent copper, several tenths of

an ounce silver per ton, and a trace of gold. These copper deposits are the most extensive mineral showings within the study area; however, production has been cursory, although there are several patented claims within the Poorman basin (99 acres). There are also eight nonpatented claims within the MWSA boundary totaling approximately 160 acres. Four of the claims have been filed within the last five years.

From the knowledge at present, the nonenergy mineral resources within the study area are considered to be minor compared to the rest of the Forest. Expectations for a substantial increase are low; however, a fair amount of prospecting activity is likely considering the general geology of the area. Also, future increases in mineral prices and further discoveries could place added emphasis on the various deposits within the study area especially the copper/quartz deposits within the Whitefish Range.

Oil and Gas

Oil and gas leases have been issued to explore lands surrounding the Study Area although no leases have been made on lands within the Study Area. Should positive results be obtained in adjacent areas, the Ten Lakes area could receive additional industry interest.

The chance of oil and gas-bearing rock strata existing at depth beneath overthrust sheets in the study area is a geologic possibility. Recent oil and gas discoveries within the Fold and Thrust Belt (which runs through the Study Area) have occurred in Canada, Montana, Wyoming, and Utah, thus increasing probability of a successful find. In fact, the overthrust belt is considered to have the highest exploration potential within the lower 48 states. Detailed surface geologic mapping, seismic profiling, and wildcat drilling will be necessary in order to test the existence, or nonexistence, of oil and gas-bearing formations at depth.

Expected Changes in the Environment

Mineral and oil/gas exploration occur independent of the Forest alternatives and their timing and magnitude are not possible to predict with any accuracy. As noted previously, mineral and oil/gas exploration is expected to increase in the future and the changes that would occur will have to be assessed and mitigated at that time.

8. Protection

a. Fire Protection and Management

Approximately 16,500 acres in the study area are considered a low fire hazard. This is primarily the higher elevation subalpine basins that are currently in the Ten Lakes original and expanded scenic area. The lower elevations, especially the steeper slopes along the western edge of the

study area ("Burma Face") have a higher fire hazard. This western edge is also adjacent to private property where ranching is the primary land use. This land use introduces a risk of fires because of associated activities such as debris burning, haying, etc. Currently, the western edge has no roads and the control of any fire starting in this area would be difficult and expensive.

Fire management encompasses both the protection of the natural resources from wildfire and the use of fire as a management tool.

Fire management areas are designated portions of the Forest that, for the purposes of fire suppression, indicate what kind of action should be taken in case of fire, either planned or unplanned ignitions. There are five fire management area (FMA) classifications, four of which are used in Forest Planning. FMA 2 includes commercial timberlands and wildlife habitat areas where planned ignitions may be used to achieve land management objectives and where unplanned ignitions will receive appropriate suppression action. FMA 3 includes lands withdrawn from the commercial timber base prescription fire including planned and unplanned ignitions, may be used to achieve land management objectives, such as reducing fuels or creating wildlife forage. FMA 4 includes the Cabinet Mountains Wilderness which has its own separate fire management plan. FMA 5 includes administrative sites, campgrounds, etc. The entire Ten Lakes Wilderness Study Area is currently assigned to FMA 3.

b. Insect and Disease Protection

As explained previously in the "Timber" discussion mountain pine beetle activity is predicted to occur within the study area within the next 2 to 5 years. Insect and disease salvage opportunities are highly dependent on road access.

Expected Changes in the Environment

a. Fire Protection

The Current Direction (No Action) alternative would eventually road some portions of the Ten Lakes Wilderness Study Area, but the western face would remain unroaded. Total road miles projected are 32 at the end of 50 years.

The Proposed Action would double the eventual road miles to 69 including some access on the western edge. Alternative C would provide no road access on the western edge. Alternatives A and D would provide access to the western edge.

b. Insect and Disease Protection

The Current Direction would have only limited ability to salvage insect and disease infected timber because of the limited road net work projected (32 miles).

The Proposed Action would have an increased ability to salvage because of the larger road network projected (69 miles), while Alternative C would provide no opportunity for salvage of insect infested timber.

9. Landownership

Three patented mining properties (99 acres) exist within the Study Area boundary, specifically within the "expanded" Scenic Area. There are no other private lands within the Study Area boundary, although there are private lands immediately adjacent to the area.

Expected Changes in the Environment

There are no changes in the landownership situation anticipated with implementation of any of the alternatives.

10. Soil and Water

It is estimated that approximately 10,800 tons of sediment are produced each year from the study area. This sediment is the result of natural occurrences rather than person-caused disturbances. The land within the study area is characterized by steep, rocky slopes at higher elevations where erosion potential is considered low and where road building is unlikely to occur. Commercial Forest lands are found at the lower elevations but are often found on steep slopes which require timber harvesting methods with few or no roads.

Water quality is generally considered excellent.

Expected Changes in the Environment

Increases in sediment production are expected to be minimal, even in those alternatives which allow timber harvesting. Alternative A, which eventually requires the most roads, would result in the largest sediment increase over the natural production.

Changes in the water quality are also expected to be minimal.

11. Economic and Social

The Eureka-Fortine (Tobacco Valley) area, in which the Ten Lakes area is located, is a predominantly resource based economy with timber and livestock (cattle) the primary industries. Because

the Tobacco Valley is a main thoroughfare for travelers between the United States and Canada, and with the addition of Koocanusa Reservoir, tourism and recreation also plays an important part in the local economy.

Fluctuations in the timber market and the seasonal nature of logging both have contributed to the high unemployment that Lincoln County has experienced. However, the recreational diversification of the economy in the Tobacco Valley area has helped to offset the high unemployment.

Recent surveys have shown that people live in the area primarily because of the natural environment and the advantages that the outdoors afford. Concerns are often expressed for the protection and management of the Forest resources to provide commodities such as timber, grazing, firewood, etc. Questions regarding wilderness or nonwilderness for Ten Lakes focus on the availability of the land for management of various resources or the protection of the primitive character of the area by classifying it wilderness. (See the Kootenai's, "Social Impact Assessment," a planning record available for review at the Kootenai Supervisor's Office.)

Expected Changes in the Environment

All alternatives except C, would be expected to be conducive to higher employment and total personal income over time. Any projected increases are not considered abrupt and would depend heavily on National and Regional economic factors, such as interest rates, housing starts, demand for minerals produced locally, etc.

12. Other Biological and Social Environmental Factors

a. Cultural Resources

Prehistoric and historic sites have been identified and recorded in the study area. No sites are pending disturbance under the existing wilderness study allocation. If future projects are undertaken, an inventory and evaluation will be performed.

Expected Changes in the Environment

Existing laws and regulations insure the protection of cultural resources, regardless of the alternative. As inventory work continues, additional sites will be added to those already identified.

b. Research Natural Areas (RNA's)

There are no existing or potential RNA's in the study area.

Expected Changes in the Environment

No change in the status of RNA's is expected.

c. Grazing

The estimated potential grazing capacity is 1,100 AUMs and all of it is transitory range. Most of this transitory range is located within the commercial Forest lands outside the original or expanded scenic area. Because of the slope steepness and lack of water, sheep grazing would be the probable livestock permitted.

Expected Changes in the Environment

No existing grazing allotments are located within the Ten Lakes Study Area and no change in the grazing situation is expected under any alternative, because of the uneconomical conditions that are inherent in herding, hauling water, etc.

IV. ENVIRONMENTAL CONSEQUENCES

A. Introduction

Environmental consequences are the result of activities scheduled to implement a land management plan. The level of activities and thus the level of environmental effects, differs among alternatives. The primary activities are: 1) wilderness management; 2) minerals and oil/gas exploration; 3) timber management and timber production; 4) wildlife and fish management including T&E species; 5) recreation management; and 6) road construction.

Some activities or programs do not change between alternatives. These include:

Range Management
Corridor Management
Cultural Resources Management

1. Range Management

The study area is shown to have the potential to produce 900-1100 AUM's, all of which is transitory range and considered uneconomical.^{1/} This transitory range would phase out in approximately 30 years in Alternative C.

2. Corridor Management

There are no existing or proposed transmission corridors in the Ten Lakes Study Area that would be affected by any of the alternatives.^{2/}

3. Cultural Resources Management

"Cultural Resources" refers interchangeably to archaeological and historic properties, and are considered to be a nonrenewable resource, making it imperative to maintain their scientific, historic, and social integrity. Governed by legislative mandates (NFMA), the Forest Service policy is "to provide for the identification, protection, interpretation, and management of cultural resources." To fulfill this obligation, the Forest conducts compliance surveys, locates, inventories, describes, and evaluates cultural resources on a project-by-project basis to prevent adverse effects by ground-disturbing activities. Cultural resources in each alternative will be managed to insure protection of the resource by meeting the legislative requirements through established procedures.

4. Other issues-related items that do not change significantly by alternative are: a) Providing opportunities for physically handicapped and b) Meeting RPA program goals.

a. Opportunities for Physically Handicapped

All alternatives limit the opportunities in varying degrees for people either wheelchair-bound or whose ability to walk is otherwise impaired, by creating roadless recreation, either through wilderness classification or roadless dispersed recreation designation. Those alternatives which include road construction would provide some motorized recreation opportunities.

No alternative would preclude other opportunities, such as interpretive nature trails for those with other types of physical handicaps such as blindness or deafness.

b. RPA Program Goals

No alternative would detract from, nor add appreciably to, the Forest's ability to meet RPA resource goals. The exception is the national wilderness goal.^{3/}

B. Wilderness Management

1. Effects on Wilderness, Other Wilderness, and Wilderness Quality

Alternatives A, B, C, and D recommend varying amounts of possible additions to the existing and proposed wilderness on the Kootenai National Forest (158,000). Alternative C proposes the largest addition (35,900 acres) and Alternative D recommends the smallest addition (6,500 acres). (See Figure TLIV-1 at the end of this chapter for wilderness acres for all alternatives.) Any of the above four alternatives would provide for a new location for a wilderness opportunity. The closest existing wilderness are located in the Cabinet Mountains Wilderness approximately 55 air miles southwest and Glacier Park approximately 35 air miles east. The Scotchman Peak proposed wilderness (72,000 acres) is located approximately 70 air miles southwest.

Generally, the quality of a wilderness environment varies by size, i.e., the larger the size the higher the wilderness quality. This usually results from an increased distance from the sights and sounds of man's activities and a greater opportunity to find solitude.^{4/}

The Ten Lakes Wilderness quality does not improve with increased size. Because of the unusual configuration of the area, the sights and sounds of man's activities remain fairly constant and solitude is not increased appreciably.^{5/}

The highest wilderness quality is considered to be the "core area" of the original Ten Lakes Scenic Area and represented by Alternative D. Neither the Proposed Action or the Current Direction propose wilderness in Ten Lakes, however, all alternatives will protect the primitive characteristics of the core area by providing either a wilderness or roadless management designation.

2. Effects on Minerals and Oil/Gas Exploration^{6/}

Wilderness (as well as roadless) management would result in additional expense for minerals and oil/gas exploration. Oil and gas exploration would be allowed with special conditions in wilderness areas (as well as other roadless allocations such as semi-primitive nonmotorized recreation). The special conditions would restrict any facilities, such as roads, drill pads, to special locations. This may also require some directional drilling. Figure TLIV-1 shows the total acres of special conditions for each alternative as well as the acres that will require restrictive surface occupancy. Of all the wilderness alternatives, Alternative C would have the largest effect on oil/gas exploration activities. Alternative A would have the smallest effect.

Although the mineral resources of the area are considered minor, in comparison to the rest of the Forest, continued exploration for hard rock minerals is considered probable. Any part of the Ten Lakes Study Area that is designated as wilderness would fall under the provisions of the 1872 Mining Law and 1964 Wilderness Act which permits mineral exploration. Mitigation would be negotiated under the 1872 Mining Law use regulations (CFR 228). The intent would be to limit surface occupancy, if at all possible, or to minimize new roads. Of all the wilderness alternatives, Alternative C would have the largest effect on mineral exploration. Alternative A would have the smallest effect.

3. Effects on Protection

A wilderness designation would preclude the harvesting of any insect-infested timber and incur some increased mountain pine beetle and spruce bark beetle activity and increased fire risk because of limited road access.^{7/}

Of all the wilderness alternatives, Alternative C would incur the highest risk for fire protection and insect salvage opportunities because of the inclusion of the western edge of the study area in a wilderness status. Alternative A would have the lowest risk for fire spread because of the larger road system projected.

4. Effects on Recreation

Wilderness designation would encourage nonmotorized forms of recreation and would prohibit developed or motorized forms of recreation. The most immediate effect that a wilderness designation would have on recreation would be on the snowmobile activity presently allowed in the area.^{8/} Wilderness designation would prohibit this existing use. Alternatives A, B, C, and D would eliminate all or a portion of the area from snowmobile activity through a wilderness designation. Figure TLIV-1 shows the portion of the area that would be available for snowmobiling

under each alternative. Of all the wilderness alternatives, Alternative C would have the largest effect on snowmobiling and Alternative D would have the smallest effect.

A wilderness designation would provide the highest degree of onsite visual quality. Of all the wilderness alternatives, Alternative C would provide the largest amount of acreage in the preservation VQO and Alternative D would provide the lowest (see Figure TLII-1 for acres of VQO by alternative).

5. Effects on Timber

A wilderness designation would prohibit timber harvest. (A roadless management designation also prohibits timber harvest except for salvage harvest when necessary.)^{9/} Alternatives A, B, C, and D proposes varying amounts of wilderness which influences where regulated timber harvest would occur. (See Figure TLIV-2).

There are 19,400 acres considered capable for timber harvest in the Ten Lakes MWSA. Each alternative allocated a portion of these acres to timber production based on the overall intent of the alternative. Figure TLIV-1 displays the acres of timber management in the Ten Lakes MWSA proposed by each alternative and the percentage of the capable timberland this represents.

Of all the wilderness alternatives, Alternative C has the greatest effect on the amount of land area available for timber management and Alternative A the least effect.

6. Effects on Wildlife and Fish Including T&E Species

A wilderness designation would provide the highest possible security for elk and grizzly bear.^{10/} Of all the wilderness alternatives, Alternative C would provide the largest area for security. Alternative A would provide the smallest area.

A wilderness designation would prohibit intensive wildlife management activities to increase forage such as timber harvesting on big game summer and winter range, and grizzly habitat. Of all the wilderness alternatives, Alternative C would have the greatest effect on intensive wildlife habitat management. Alternative D would have the smallest effect.

7. Effects on Local Economics and Community Stability

Generally speaking, a wilderness designation would tend to contribute less to the local economy than a nonwilderness alternative.^{11/} This is because returns to the State and employment and personal income are primarily influenced by timber harvesting which is not permitted in wilderness. Of all the wilderness alternatives, Alternative C would make the smallest contribution to the local economy and Alternative A would make the largest contribution. See Figure TLII-1.

C. Minerals and Oil/Gas Exploration

1. Effects on Wilderness

Mineral Exploration

Mineral exploration and development are permitted in existing and proposed wildernesses, as well as wilderness study areas. When exploration occurs in wilderness areas, mitigation measures are applied which can include regulating the timing of activities, limiting means of access, and applying other measures to lower the impact of the mineral exploration activity. Mitigation serves to lower the impact of exploration activities. Full mineral development, however, could result in loss of the wilderness resource.

Oil and Gas Exploration^{12/}

Oil and gas exploration is also permitted in wilderness areas. In those portions of the Ten Lakes MWSA allocated to wilderness, special conditions would be applied which would restrict the location of facilities, such as roads, drill pads, etc., and could require directional drilling. This would reduce the impact on the wilderness resources.

2. Effects on Protection

Mineral and oil/gas exploration is generally compatible with fire management and salvage of insect infested timber because of the road construction that is normally associated with exploration activities. The roads would allow rapid salvage of insect infested timber and also allow quick response to fires.

3. Effects on Recreation

Surface occupancy for oil and gas leasing would be restricted in roadless management areas so the primary effect on roadless recreation would result from any needed roads.^{13/}

Mineral exploration could also affect roadless management areas, especially if roads were required to facilitate the operating plan. The intent would be to require the use of methods of least impact (such as the use of helicopters) in roadless areas, wherever possible, to protect the roadless resource.^{14/} Effects on the visual resource would primarily be in the form of roads, should roads be necessary to reach the exploration site. VQO's for the area would be applied to mitigate the visual impacts of roads, if at all possible.

4. Effects on Timber

Timber management and mineral and oil/gas exploration are generally compatible. Should development occur within commercial timber lands, some timber lands could be removed for a period of

time from the timber base. The total effect of this possible removal is speculative and is not considered to be of a large enough acreage to affect any base sale schedules in any Forest-wide alternatives.^{15/} It is possible that an effect on timber harvest scheduling could result from a potential conflict with mineral exploration and grizzly bear habitat because of the need to compensate for the grizzly as required by the Endangered Species Act.

5. Effects on Wildlife and Fish Including T&E Species

Mineral and oil/gas exploration activities are generally not entirely compatible with wildlife and fish and special coordination requirements would apply should activities occur within wildlife habitats. These special requirements (and/or stipulations) would include restricting periods of activities to times of nonuse by wildlife.^{16/}

6. Effects on Local Economics and Community Stability^{17/}

Because mineral and oil/gas exploration are initiated by private companies it is not feasible to accurately predict the timing and magnitude of any exploration project. Some generalizations can be made for perspective purposes to outline some probable effects. It is generally agreed that some minerals, and especially oil and gas exploration will occur in the general area during the next decade no matter what alternative is chosen for Ten Lakes. Several levels can be conceptualized that could cover the range of possible oil and gas exploration and development. They are entitled Low, Moderate, and High.

The Low level is the continuation of previous exploration levels which would not affect the local economy to any great extent.

The Moderate level is an increased level of oil and gas exploration and possible development. This would increase the local tax base and tax collections and increase the number of jobs and wages earned and spent in the local economy. It is anticipated that the existing slack in the economy would be taken up, such as unemployment, etc.

The High level of oil and gas exploration would envision an intensive amount of activity leading to the possible development of a small field of two to ten wells, including a gas processing facility. This would generate approximately 20 to 50 new jobs locally and result in additional diversification in the local economy, including additional revenues to the State from royalties. This level of activity would probably extend beyond the study area boundary.

D. Timber Management and Timber Production

1. Effects on Wilderness

Timber management and production, including the associated road construction, generally precludes any future consideration for wilderness designation. In addition, timber harvest and road construction on lands adjacent to a wilderness can produce sights and sounds which can detract from a wilderness experience. Alternative C would probably incur the highest incidence of detractive sights and sounds because of the topography and irregular perimeter. Alternative D in contrast would probably experience the least amount of detractive sights and sounds because of its compact size and short perimeter.

2. Effects on Minerals and Oil/Gas Exploration

There are no anticipated adverse impacts of timber management activities on mineral and oil/gas exploration because the resources are generally compatible.^{18/} Coordination requirements concerning transportation systems and timing of harvest serve to assure no adverse impacts would occur.

3. Effects on Protection

Fire is used as a management tool to reduce "activity-created" fuel, such as right-of-way and timber harvest slash. Burning not only reduces fire hazard, but also helps prepare the seedbed for a new crop of trees. The alternatives with the largest area scheduled for timber harvest generally require the most activity fuel treatment. The treatment of slash created by timber harvest is necessary to reduce insect and disease problems and to reduce the possibility of wildfire. As more roads are developed and areas more accessible, the potential for man-caused fires increases, especially with concentrated use such as firewood gathering in areas where activity fuels have not been burned.^{19/} Treatment of activity fuels over time and increased access can reduce the potential for the size and spread of wildfires.

4. Effects on Recreation

Timber management activities with its associated road construction directly effects dispersed recreation opportunities.^{20/} Roadless recreation opportunities are reduced and other opportunities are changed. As unroaded areas become roaded, opportunities for snowmobiling and cross country skiing can be enhanced because of easier access to the higher elevations.

Timber management activities and road construction have the most significant effect on visual quality.^{21/} Although the impacts of timber management are generally short-termed, the immediate change to the existing landscape is undesirable to many Forest

visitors.^{22/} The establishment of visual quality objectives (VQOs) provides the method for carrying out timber management while protecting the visual resource. Acres of VQO's in capable and available timberland (suitable) are displayed in Figure TLIV-1. Alternatives with the least percentage of the suitable timber acreage in Retention, and Partial Retention would have the potential for the most disruption of the visual resource. Those with the highest percentage would have less potential for disruption of the visual resource. Alternative A has the highest potential for disruption of the visual resource and Alternative D and the Proposed Action have the least potential for disruption.

5. Effects on Timber

The volume production for the base sale schedules displayed in Table TLIV-1 varies according to the acres allocated to timber management (suitable areas). (Volume production can also be increased over time as a result of management or cultural practices such as reforestation, precommercial thinning, and commercial thinning which affect growth rates and age class distribution.) The acres suitable for timber production, displayed in Figure TLIV-1, reflect the extent of timber activities applied by alternative. These allocations define the area limits to which timber management practices may be applied in an alternative. Those alternatives with the largest acreages of suitable timber have the potential to provide the most beneficial biologic and economic effect on the timber resource. These benefits include proper age class distribution, maintenance of younger stands, reduced mortality, increased utilization, and higher production levels of this renewable resource.^{23/}

No timber volume is scheduled in the first decade in Alternative 4a (Proposed Action) and Alternative D because timber harvest opportunities elsewhere on the Forest contributed a higher present net value.

Silvicultural Systems

Even-aged silviculture will be practiced in all timber types. The Forest plans to harvest timber by two silvicultural methods: clearcutting (which includes seed tree cutting) and shelterwood (these silvicultural systems are defined in the glossary). The Kootenai has had good success in obtaining natural regeneration in harvested areas, especially in the larch and lodgepole pine types.^{24/} The alternatives with the higher timber outputs will require proportionally more artificial regeneration which will result in more site preparation and cost.

6. Effects on Wildlife and Fish

Elk

Wildlife management is done primarily through vegetative manipulation as a result of coordinated timber harvest practices.

(Road management during critical periods such as rutting and calving are also important.)^{25/} These timber harvest practices include cutting prescriptions that provide for certain levels of hiding cover to be left on an area (cover/forage ratios). (Some cover/forage ratios may not be achievable when there is a need to salvage insect-infested timber.)

Alternative A provides for the least amount of coordinated timber harvest practices. Alternative D and the Proposed Action provide for the highest amount of coordinated timber harvest practices.

Threatened and Endangered Species (Grizzly)

Timber management activities can directly affect the grizzly population because of the habitat changes incurred as a result of vegetation manipulation such as timber harvesting, site preparation, etc., and in increased human encounters because of increased road construction.^{26/}

Timber management activities, if well coordinated can produce positive benefits by producing more desirable forage for grizzlies through certain timber harvest and site preparation practices such as small clearcuts and broadcast burning instead of tractor piling.^{27/} If road closures are instituted in a timely manner, human/bear encounters can be kept to a minimum.^{28/} Alternative A provides for the lowest level of coordinated timber harvest practices to support the grizzly. Alternative D and the Proposed Action provide the highest level of coordinated timber harvest practices.

7. Effects on the Local Economy and Community Stability^{29/}

The wood products industry is the primary employer in Lincoln County. The Kootenai also provides the majority of the timber milled in the local area. The continued availability of the timber resource is a major concern of the local population, because timber is the major contributor to the economic categories of employment, personal income, and return receipts to the State.

Alternatives A, D, and the Proposed Action provide the largest positive effect on the local economy.

E. Wildlife and Fish Management Including Threatened and Endangered Species

1. Effects on Wilderness

No effects on wilderness are foreseen as a result of wildlife or threatened and endangered species (grizzly) management because the wilderness allocation precludes deliberate planned management for wildlife.

2. Effects on Minerals and Oil/Gas Exploration

Wildlife effects on minerals and gas/oil exploration are related to the special requirements and conditions that are placed on these activities in wildlife habitat, especially grizzly bear habitat. Wildlife management prescriptions require a coordination of activities to assure that wildlife and fish habitats are not unduly disturbed during periods of critical wildlife use such as calving.^{30/} Alternative D and the Proposed Action would require the greatest amount of coordination for wildlife management purposes. Alternatives B and C would require the least amount of wildlife coordination.

3. Effects on Protection

Timber salvage harvest is not prohibited by wildlife management allocations and thus the ability to deal with an insect infestation is not impeded by wildlife management considerations. An exception to this statement is when a timber harvest salvage is proposed at the same time that a mineral exploration activity is proposed within important grizzly habitat. In this situation, it is possible that the insect salvage may have to be postponed to allow the mineral exploration activity to progress, in order to compensate for the grizzly in accordance with the Endangered Species Act.^{31/}

4. Effects on Recreation

The presence of wildlife is a primary reason people recreate on the Forest.^{32/} Some motorized forms of recreation could be restricted seasonally as road restrictions are applied to protect wildlife values. Demand for the use of specific roads will continue to produce complaints from some portions of the public.^{33/} Alternative A will result in the largest amount of road miles closed for wildlife purposes. Effects of wildlife management on the visual resource relates primarily to spring and fall burning that will occur periodically in wildlife habitat. Impacts would be in the form of burned-over areas that would return to grass in about two months in the spring or would be snow covered in the winter. These impacts are considered short-term. Alternative D and the Proposed Action would have the most area to be managed for wildlife.

5. Effects on Timber

Timber and wildlife are generally compatible and wildlife allocations are usually accompanied by regulated timber harvesting.^{34/} The presence of wildlife values can lead to coordinating cover/forage ratios and the timing of harvest to coincide with periods when wildlife (including grizzly bears) are not using the area.^{35/} An important effect on timber could occur through the delayed-harvest requirements that could occur as a result of compensation necessary for the grizzly bear as required by the Endangered Species Act. This could be a result of possible mineral exploration and the timing and magnitude is not predictable.

6. Effects on Local Economy and Community Stability^{36/}

Effects of wildlife on the local economy are related primarily to the recreational aspects such as hunting and fishing. In determining the costs and benefits of the alternative outputs, hunting and fishing recreation were also included.

Alternative D and the Proposed Action will result in the largest effect on the local economy as a result of recreation use which is related to hunting and fishing.

F. Recreation Management

1. Effects on Wilderness

Motorized forms of recreation are not compatible with wilderness. The Ten Lakes MWSA has had a history of snowmobile use since the original designation of the Ten Lakes Scenic Area.^{37/} The continued use of snowmobiles is assumed wherever permissible and this continuing use will require boundary signing to inform the public of any wilderness designation, particularly in Bluebird Basin. Snowmobile use could result in a violation of the wilderness boundary in Alternatives A, B, C, and D.

2. Effects on Minerals and Oil/Gas Exploration

The alternatives provide roadless recreation management areas in varying degrees which require special negotiations regarding minerals access. Mineral exploration is permitted in roadless recreation areas, but access is restricted to protect recreation values. Management guidelines for these areas encourage preliminary exploration by cross-country travel where terrain permits, and helicopter use elsewhere.^{38/} New roads will be allowed only when justified by geologic information.

Alternatives B and C would have the greatest effect on minerals and gas/oil exploration because of roadless recreation management (including wilderness). Alternative A would have the least effect.

3. Effects on Protection^{39/}

Opportunities to salvage dead or dying insect-infested timber are directly related to the type of recreation being managed for. Motorized forms of recreation (excluding snowmobiles) would facilitate salvage because of the associated road networks that accompany this form of recreation use.

Roadless dispersed recreation can limit the ability to salvage timber because of the lack of road access. Aerial logging systems are permitted for salvaging timber in all roadless management areas except wilderness, where no mechanized equipment is permitted.

Alternative A and the Current Direction would have the least effect on timber salvage possibilities because of roadless dispersed recreation management.

Recreation use can be accompanied by increased potential for person-caused fires. These alternatives anticipating the higher recreation use, the Proposed Action and Alternative D, also assume a greater risk for person-caused fires. Alternative A would have the least potential risk.

4. Effects on Recreation

Effects on recreation as a result of recreation management involve varying effects on particular user groups. For example, some alternatives provide more motorized forms of recreation and this would effect the user groups that prefer the more primitive forms of motorized or nonmotorized recreation opportunities. Alternative D and the Proposed Action would provide the most opportunities and favorable setting for motorized dispersed recreation. Alternatives B, C, and the Current Direction would provide the most opportunities and favorable settings for non-motorized dispersed recreation.

5. Effects on Wildlife and Fish

Recreation allocations such as roadless dispersed recreation and wilderness are generally compatible with wildlife and fish.^{40/} The exception is the possible over fishing of popular lakes and streams. Bag limits would need to be adjusted or stocking levels increased to handle the additional pressure. Direct effects on wildlife come primarily from hunting. The amount of big game harvested is determined by the State which regulates hunting seasons as a means to control the big game populations.

Wildlife prescriptions contain road restrictions and restrictions on snowmobile use in big game (elk, deer) winter range, to protect wildlife during certain seasons.^{41/} Unauthorized motorized recreation adversely impacting wildlife would be dealt with as a violation of the prescription. These winter range allocations are located along the west and southern boundaries of the planning area adjacent to private land.

6. Effects on Local Economy and Community Stability^{42/}

Recreation use in Ten Lakes is expected to increase over the next 50 years, regardless of the alternative implemented. Effects of recreation on the local economy are tied to dollars spent on recreational activities and to the employment generated by recreation use. These local economic effects would take place in the service sector of the economy, i.e., restaurants, motels, service stations, etc.

Recreation in Ten Lakes does not contribute to the return receipts to the States. Recreation-related returns usually include campground fees and camping and outfitter guide permits, of which there are none in the Ten Lakes Wilderness Study Area.

Alternative D and the Proposed Action will generate the largest contribution to the local economy because of recreation related use.

G. Road Construction

1. Effects on Wilderness

Road construction is prohibited in wilderness areas. Roads adjacent to a wilderness area, however, can provide ready access which could lead to potential overuse at these access points.^{43/} Use would need to be monitored to insure against overuse that could degrade wilderness values.

Alternative C will require the most monitoring for potential overuse at access points. Alternative D should require the least monitoring.

2. Effects on Minerals and Oil/Gas Exploration

The presence of roads would facilitate mineral and oil/gas exploration.

3. Effects on Protection

Road construction and access increase the potential for man-cause fires; however, roads increase initial attack capabilities and provide fuelbreaks. The existence of roads greatly facilitates the salvage of insect-infested timber which can deteriorate rapidly.

Alternative A will provide for the most access for fire protection and insect salvage.

4. Effects on Recreation

Road construction changes the recreation setting from a non-motorized setting to a lightly developed motorized setting. This in turn affects the type of recreation activities and user groups. For example, as access impacts wildlife habitat, the quality of the hunting recreational experience may decrease. Appropriate road closures (timing and duration) can mitigate the loss of a quality hunting experience to some degree.^{44/} Alternative B and the Current Direction provide the highest level of protection against the loss of quality hunting experiences.

Road construction can affect the basic character of the landscape by removing vegetation and disturbing the soil, thus changing the color, texture, and lines of the landscape. In open areas, roads introduce strong lines into the landscape that can be visible for many miles, depending on topography and vegetation. Cut and fill areas are often highly visible and may alter the landscape for long periods of time. Visual quality objectives establish guidelines for mitigating the impact of road construction on the viewing experience. Alternative D and the Proposed Action provide the highest level of visual quality protection where road construction and timber harvesting is permitted (suitable land). Alternative A provides the lowest level.

5. Effects on Timber

Roads have an effect on timber through removing land from production but roads increase the opportunity for intensive timber management practices, salvage programs, and firewood gathering.

6. Effects on Wildlife

The presence or absence of roads affects elk security which, in turn, determines the quality of the habitat and the number of elk there will eventually be. One method of providing elk security is to close roads once the timber harvest activities are completed.^{45/}

Road closures can be seasonal as in summer range and winter range or they can be yearlong.^{46/} In many of the wildlife management areas almost all of the local roads will be closed to minimize the human contact. Figure TLIV-1 displays the miles of total roads remaining open. The Current Direction and Alternative B will have the least number of road miles open. Alternative A will have the most roads open.

7. Effects on Local Economy and Community Stability

Roads and timber are interrelated. The economic benefits derived from timber harvesting, in terms of employment and total personal income, are almost entirely dependent on roads and road construction.^{47/}

H. Effects on Lifestyles

The rugged, primitive environment of Ten Lakes is the reason the area holds the attraction for Forest users. Regardless of the alternative implemented, much of the primitive characteristics of the area will be maintained either through wilderness classification or through roadless management allocations including a Scenic Area designation.

A wilderness classification would, however, curtail winter snowmobiling, an activity that is considered an important aspect of local lifestyles. Though the snowmobiling use is not considered substantial, the activity is well established and prohibition could lead to local enforcement problems.^{48/}

I. Effects on Landownership

Three patented mining properties (99 acres) and eight nonpatented claims (160 acres) exist within the Study Area boundary, specifically within the original and expanded Scenic Area. There are no other private lands within the Study Area boundary, although there are private lands immediately adjacent. All alternatives propose the eventual acquisition of the three patented mining properties, if at all possible, to preserve the intent of the existing and proposed land allocations.

J. Short Term Use/Long Term Productivity

Short term uses are those that generally occur on a yearly basis on many parts of the Forest, such as logging as a use of the timber resource, recreation as a use of the water resource, and livestock grazing as a use of the forage resource. Long term refers to longer than a 10-year period.

Productivity refers to the capability of the land to provide resource outputs. Soil and water are the primary factors of productivity and represent the relationship between short term uses and long term productivity.

The short term uses that will occur on a yearly basis are coordinated and scheduled to insure the basic protection of the soil and water. This basic soil and water protection insures the continued long term productivity under each alternative considered.

Under the proposed action, as well as some of the other alternatives, various short term uses are scheduled to increase long term productivity. Examples are precommercial and commercial thinning which will result in increased timber yields over time.

K. Irreversible/Irretrievable Commitment of Resources

An irreversible commitment of a resource refers to resources that are renewable only after a long period of time (such as soil productivity), or to nonrenewable resources, (such as minerals). Measures to protect those resources such as soil productivity that could be irreversibly affected by other uses are incorporated in the Forest-wide standards and guidelines.

An irretrievable commitment is resource production or use of a renewable resource that is lost because of an allocation decision. This represents opportunities foregone for the period of time that the resource cannot be used. The commitment is irretrievable rather than irreversible because future changes could make the resource available. An example of an irretrievable commitment of the timber resource is wilderness and roadless management allocations. Timber harvesting is not permitted in wilderness and roadless management areas. Therefore the average annual sustained yield timber production that could be possible on those lands must be foregone. If at sometime in the future a decision was made to permit timber harvesting, those average annual sustained yield volumes could be added to the Forest total annual production level. The average annual timber production that was foregone while the area was allocated to roadless management cannot be "made up" for the years that have past. That is irretrievable. Only the "new" volume can be realized, if a decision is made to change from roadless management (unregulated timberlands) to some form of regulated timber management.

All the alternatives have made irretrievable commitments of the timber resource in varying degrees, depending on the acres of productive Forest timberland allocated to wilderness and roadless management.

Alternative C proposes the largest irretrievable commitment of the timber resource. Alternative A proposes the least.

The proposed action proposes a moderate amount of an irretrievable commitment of the timber resource, but less than would be realized under the Current Direction (No Action).

An irretrievable commitment of the roadless resource will be made in all areas destined for timber management.

Alternative A will make the largest irretrievable commitment of the roadless resource and Alternative C will make the least.

The Proposed Action proposes a moderate amount of an irretrievable commitment of the roadless resource and more than would be realized under the Current Direction (No Action).

L. Adverse Effects That Are Not Avoidable (Proposed Action)

Implementation of the Proposed Action will result in some possible adverse environmental effects that cannot be avoided.

These effects include:

1. A possible adverse effect on scenic quality in some areas because of timber harvesting, prescribed burning, and road construction.
2. Foregone timber volumes because of insect activity.
3. Potential mineral exploration, of which the timing and magnitude cannot be accurately predicted.
4. Foregone wilderness options on unroaded lands scheduled for development.

M. Mitigation Measures to Reduce the Unavoidable Adverse Effects (Proposed Action)

1. The possible effects of timber harvesting, prescribed burning, and road construction on visual quality will be mitigated by following visual management guidelines.
2. Foregone timber volumes because of beetle insect activity, will be mitigated by prompt salvage, if at all possible and accessible.
3. The effects of potential mineral exploration can be negotiated under the 1872 Mining Law Use Regulations (CFR 228).
4. Wilderness options are retained on those areas managed for roadless recreation (18,800 acres).

TEN LAKES MONTANA WILDERNESS STUDY AREA (PL 95-150)

ENVIRONMENTAL CONSEQUENCES

(AVERAGE ANNUAL RESULTS)

Resource Item or Results	Unit of Measure	Decade	Current Direction (No Action)	Proposed Action	Alt. A	Alt. B	Alt. C	Alt. D
Wilderness								
Recommended to Congress	Acres	1	0	0	16,400	29,600	35,900	6,500
Roadless Acres Recommended	Acres	1	16,400	18,800	0	0	0	12,300
Total Wilderness and Roadless Acres Recommended	Acres	1	16,400	18,800	16,400	29,600	35,900	18,800
Timber								
Area Available for Timber Mgmt. & Harvest (Suitable)	Acres	1	5,700	16,500	18,600	5,500	0	16,500
Proportion of Total Capable Timberland Available for Mgmt. & Harvest (Regulated)	Percent	1	29	85	96	27	0	85
Base Sale Schedule	MMBF	1	1.1	0.0	1.1	1.1	0	0.0
		2	0.2	3.8	2.2	0.2	0	3.8
		3	0.5	3.5	8.2	0.5	0	3.5
		4	0.0	2.3	1.2	0.0	0	2.3
		5	0.2	1.8	0.5	0.2	0	1.8
Recreation								
Area Available for Snowmobiling	Acres Percent	1 1	35,900 100	35,900 100	19,500 54	6,300 18	0 0	29,400 82
Visual Quality								
Protective VQO's on Suit- able Timberland (Reten- tion & Partial Retention VQO Combined)	Acres Percent	1 1	3,000 53	12,100 73	7,500 40	3,600 65	0 -	12,100 73
Wildlife								
Total Roads	Miles	5	32	69	106	32	0	69
Total Road Restrictions Eventually Required	Miles	5	22	34	66	22	0	34
Road Miles Remaining Open	Miles	5	10	35	40	10	0	35
Oil & Gas Exploration								
Special Condition Areas Including Restrictive Surface Occupancy	Acres	1	28,900	32,800	22,400	31,200	35,900	32,800
Restrictive Surface Occupancy Areas Only	Acres	1	25,000	26,700	18,300	30,400	35,900	26,700
Protection								
Fire Mgmt. Areas (FMA)								
FMA 2	Acres	1	19,500	17,100	19,500	6,300	0	17,100
FMA 3	Acres	1	16,400	18,800	0	0	0	12,300
FMA 4	Acres	1	0	0	16,400	29,600	35,900	6,500
Total Acres FMA 3 & 4	Acres	1	16,400	18,800	16,400	29,600	35,900	18,800
Insect & Disease Salvage								
Proportion of Area Available for Salvage	Acres Percent	1 1	35,900 100	35,900 100	19,500 54	6,300 18	0 0	29,900 82
Local Economy								
Return Receipts to States (1978 Dollars)	Thousand Dollars	1 2 3 4 5	30 8 24 0 35	0 153 167 229 179	35 80 413 148 37	30 8 24 0 35	0 0 0 0 0	0 153 167 229 179

CHAPTER IV NOTES

- 1/ Memo from John Dillon, Subject: Review of Livestock Grazing Potential on the Kootenai National Forest, November 17, 1981.
- 2/ Bill O'Brien, Personal Communication, June 1982.
- 3/ USDA Forest Service, RPA: A Recommended Renewable Resource Program, March 1976, pp. 633-635.
- 4/ USDA Forest Service, RARE II Final Environmental Impact Statement, January 1979.
- 5/ Ten Lakes Issue Situation Statements, December 20, 1979.
- 6/ Discussion drawn from Copper Gulch-Rock Peak Environmental Assessment, June 1982.
- 7/ Paul Leimbach, Personal Communication, August 1982.
- 8/ Eureka-Grave Creek, Final Environmental Impact Statement, Kootenai National Forest, May 1974.
- 9/ Kootenai National Forest Proposed Plan (Draft), Kootenai National Forest, Chapter III, Management Area Prescriptions, September 1982.
- 10/ Wildlife (Elk) Coefficients, Criteria for Analysis of the Management Situation Volume 4, Kootenai National Forest, February 1981, Section A.
- 11/ Interpretation Based on CALDAT, Input/Output Model.
- 12/ Discussion Drawn from Oil and Gas Lease Applications Environmental Assessment, Kootenai National Forest, June 1980.
- 13/ Oil and Gas Environmental Assessment (Nonwilderness), (Draft), Kootenai National Forest, August 1982.
- 14/ Proposed Plan, Chapters II and III.
- 15/ Interpretation Based on Projected Timber Volumes for Ten Lakes MWSA and the Forest as a Whole.
- 16/ Cumulative Effects Analysis Process - Grizzly Habitat Component Mapping, Kootenai National Forest, 1982.
- 17/ Discussion Based on Bill O'Brien, Personal Communication, May 1982.
- 18/ Analysis of the Management Situation, Kootenai National Forest, September 1981, p. 47.
- 19/ Jim Shadle, Personal Communication, May 1982.
- 20/ Recreation Coefficients, Criteria for Analysis of the Management Situation, Section D.

- 21/ Proceedings of our National Landscape, USDA Forest Service, April 1979, p. 36.
- 22/ Proceedings, p. 44.
- 23/ Timber Coefficients, Criteria for the Analysis of the Management Situation, Section A.
- 24/ Timber Coefficients.
- 25/ Wildlife (Elk) Coefficients.
- 26/ Cumulative Effects Analysis.
- 27/ Bill Ruediger and J. Mealey, Coordination Guidelines for Timber Harvesting in Grizzly Habitat, Kootenai National Forest, 1978.
- 28/ Ruediger and Mealey.
- 29/ Discussion Based on Les Miller, Economic Information Used in the Forest Plan, Kootenai National Forest Planning Record.
- 30/ Proposed Plan.
- 31/ Alan Christensen, Personal Communication, June 1982.
- 32/ Montana Outdoor Recreation Plan, Volume 2, Planning Region 10, 1974.
- 33/ Jerry Haugen, Personal Communication, September 1982.
- 34/ Wildlife Coefficients.
- 35/ Proposed Plan.
- 36/ Miller, Economic Information.
- 37/ Eureka-Grave Creek
- 38/ Proposed Plan.
- 39/ Paul Leimbach, Personal Communication, August 1982.
- 40/ Analysis of the Management Situation, p. 47.
- 41/ Proposed Plan.
- 42/ Miller, Economic Information.
- 43/ Gary Hathaway, Personal Communication, June 1982.
- 44/ Recreation Opportunity Inventory and Evaluation, USDA Forest Service, Northern Region, June 1974.
- 45/ Analysis of the Management Situation, p. 43.

- 46/ Proposed Plan.
- 47/ Miller, Economic Information.
- 48/ John Pritchard, Personal Communication, July 1982.

V. List of Preparers

The following individuals contributed to the preparation of this Environmental Impact Statement and to the development of the Kootenai Forest Plan.

INTERDISCIPLINARY/PLANNING TEAM

	<u>Job Title</u>	<u>Education/ Degree</u>	<u>Approximate Work Experience (years)</u>
Alan Christensen	Wildlife Biologist	Master of Science	10
Mary Collins	Archeologist	Bachelor of Arts	8
John Dillon	Former Aviation and Fire Staff	Bachelor of Science	25
Mike Enk	Fisheries Biologist	Master of Science	1
Joe Glassy	Former Kootenai Fire Planning Specialist	Bachelor of Science	7
Gloria Gross	Landscape Architect	Bachelor of Arts	6
Gary Hathaway	Landscape Architect	Master of Arts	20
Jerry Haugen	Transportation Planner	Bachelor of Science	9
Dave Howard	Former Planning Staff	Master of Science	13
Steve Johnson	Hydrologist	Master of Science	3
Lou Kuennen	Soil Scientist	Master of Science	15
Paul Leimbach	Land Use Planner/ Core Team Leader	Bachelor of Science	20
John Lloyd	Fisheries Biologist	Master of Science	10
Cynthia Manning	Former Kootenai Archeologist	Bachelor of Arts	4
Larry Meshew	Hydrologist	Master of Forestry	7
Les Miller	Economist	Master of Science	4
Tim O'Gorman	Writer/Editor-Cultural Resource	Master of Arts	5
Jerry Park	Silviculturist	Bachelor of Science	15
Bob Rainville	Former Kootenai Fisheries Biologist	Master of Science	4
Jim Shadle	Planning Staff	Bachelor of Science	13
Tim Tolle	Former Kootenai Hydrologist/ Land Planner	Doctor of Philosophy	4

Brian White	Minerals Specialist	Doctor of Philosophy	2
Carl Wolf	Lands Officer	Bachelor of Science	20

ADMINISTRATION

	<u>Job Title</u>
Chuck Brooks	Resource Staff
Bjorn Dahl	Former Troy District Ranger
John DeYoung	Administrative Staff
Dave Erwin	Zone II Engineer
Dave Fischer	Yaak District Ranger
Gene Gibson	Zone I Engineer
Larry Hudson	Troy District Ranger
Ron Humphrey	Cabinet District Ranger
Floyd "Butch" Marita	Former Forest Supervisor
Bill Morden	Forest Supervisor
Gary Morgan	Lands, Minerals, and Recreation Staff
Bill Perry	Forest Engineer
Dave Poncin	Rexford District Ranger
John Pritchard	Murphy Lake District Ranger
Gary Rahm	Libby District Ranger
Maynard Rost	Former Resource Branch Chief
Jim Spaulding	Zone III Engineer
Ken Strauss	Fisher River District Ranger
Mel Teigen	Former Forest Engineer
John Wells	Timber Staff

TECHNICAL SUPPORT

	<u>Job Title</u>
Dawn Ballou	Writer/Editor
Joe Campbell	Computer Specialist
Lori Carr	Clerk/Typist
Casey Cassidy	Clerk/Typist
Liz Chase	Clerk/Typist
Liz Delisi	Clerk/Typist
Jannette England	Cartographic Aide
Ken Haddock	Clerk/Typist
Mary Huffmen	Cartographic Aide
Patricia Johnson	Graphic Specialist
Mary Ann Jones	Computer Assistant
Erma Kaeding	Cartographic Technician
Nancy Keller	Cartographic Aide
Glenda Larson	Offset Press Operator
Nancy Matter	Clerk/Typist
Nora McCloskey-Bauer	Supervisory Clerk/Typist
Linda Mercer	Computer Assistant
Linda Meyer	Clerk/Typist
Crystal Perry	Cartographic Aide
Bonnie Richards	Cartographic Aide
Carol Rowberry	Offset Press Operator
Bobbie Russell	Computer Specialist
Linda Sather	Cartographic Aide
Lance Schelvan	Visual Information Specialist
Sally Suk	Computer Assistant
Lynn Trowbridge	Clerk/Typist
Bob Vesper	Computer Clerk
Dona Wilson	Clerk/Typist

IV. List of Agencies and Individuals to Whom the Draft is Sent

The following is a list of agencies and individuals to whom a copy of the Summary and/or Draft Environmental Impact Statement will be sent.

KEITH KNOBLOCK AMERICAN MINING CONGRESS 1920 N STREET NW WASHINGTON DC 20036	NORTHWEST EXPLORATION DIV. ASARCO INCORPORATED E. 920 WORVERTON COURT (NORTH 2900 NEVADA) SPOKANE WA 99207	PUBLIC LANDS COORDINATOR ATLANTIC RICHFIELD COMPANY 353 17TH STREET ATTN. CLAIRE MOSELEY DENVER CO 80217
DAWN BALLOU P.O. BOX 1219 LIBBY MT 59923	SENATOR MAX BAUCUS FEDERAL BUILDING MISSOULA MT 59901	BN TIMBERLANDS P.O. BOX 1957 KALISPELL MT 59901
BN TIMBERLANDS INC. 700 SOUTH AVENUE WEST MISSOULA MT 59801	BONNER COUNTY COMMISSIONERS BONNER COUNTY COURTHOUSE SANDPOINT ID 83846	ENVIRONMENTAL MANAGER BONNEVILLE POWER ADMINISTRATION BOX 3621 PORTLAND OR 97208
BOUNDARY COUNTY COMMISSIONERS BOUNDARY COUNTY COURTHOUSE BONNERS FERRY ID 83805	HAROLD A. BRAUS 506 NORTHWESTERN DRIVE BOZEMAN MT 59718	LOU BUCKLIN 305 E. VERMILYA #34 BLOOMINGTON IN 47401
BRANCH OF FORESTRY-FLATHEAD AGCY. BUREAU OF INDIAN AFFAIRS BOX A PABLO MT 59855	ARLIE BURK ROUTE 1 BOX 37 EUREKA MT 59917	RICHARD BUTI 310 E. 5TH STREET LIBBY MT 59923
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DEPT. OF STATE LANDS BOX 490 KALISPELL MT 59901	JIM DICKINSON P.O. BOX 108 MOYIE SPRINGS ID 83843	KEITH ENGEBRETSON STAR ROUTE MARION MT 59925
MR. JOE BINDER, DIRECTOR ENVIRONMENTAL & ENERGY REG. DIV. RURAL ELECTRIFICATION ADMIN. WASHINGTON DC 20230	ENVIRONMENTAL INFO CENTER P.O. BOX 1184 HELENA MT 59601	DR. H. PAUL FRIESEMA ENVIRONMENTAL POLICY PROGRAM NORTHWESTERN UNIVERSITY 2040 SHERIDAN EVANSTON IL 60201

GENE TAYLOR ENVIRONMENTAL PROTECTION AGENCY REGION 8 MONTANA OFFICE FEDERAL BLDG 301 S PARK HELENA MT 59601	RONALD SENTENIER F M STOLTIE LAND & LUMBER BOX 1429 COLUMBIA FALLS MT 59912	FENNESSEY CROCKER & ALLEN ATTN JOE FENNESSEY 305 MINERAL AVENUE LIBBY MT 59923
FLATHEAD COUNTY COMMISSIONERS FLATHEAD COUNTY COURTHOUSE KALISPELL MT 59901	FLATHEAD NATIONAL FOREST P.O. BOX 147 KALISPELL MT 59901	V. ALARIC SAMPLE, JR. FOREST MGT. PROGRAM 1901 PENNSYLVANIA AVE. NW WASHINGTON DC 20004
FOREST PLANNING P.O. BOX 3479 EUGENE OR 97403	MR & MRS HARRY FOWLER BOX 488 EUREKA MT 59917	MR. & MRS. AUSTIN FRASER ROUTE 4 BOX 147 LIBBY MT 59923
GOVERNORS'S OFFICE ATTN: TIM GALLAGHER STATE CAPITOL HELENA MT 59620	KENNETH M GOLDSMITH 555 FOREST ROAD NORTHFORD CT 06472	BERT LINDLER GREAT FALLS TRIBUNE BOX 2468 GREAT FALLS MT 59403
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W I CALDWELL MONTANA STATE DIV OF FORESTRY 415 MINERAL AVE		MONTANA STATE HISTORICAL SOCIETY HISTORIC PRESERVATION OFFICE 225 N. ROBERTS HELENA	MT 59601	MONTANA WILDERNESS ASSOCIATION P.O. BOX 635	
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WILLIAM B SAINT		SANDERS COUNTY COMMISSIONERS BOX 102		TERRY R SCHREEL	
BOX 1520				RT. 2 BOX 714	
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JOSEPH C SCHOTT		JULIE SHADLE		ART & RUTH SHELTON	
1417 D. BELL ST		STAR RT 2		RT. 1 BOX 1650	
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BOUNTIFUL	UT 84010	SAN FRANCISCO	CA 94108	P.O. BOX 873	
WOLA SLOAN		MR & MRS JACK C SMITH		WINDOW ROCK	AZ 86515
BOX 577		BOX 245 BULL RIVER ROAD		SOIL CONSERVATION SERVICE ATTN: SNOW SURVEY SUPERVISOR P.O. BOX 98	
TROY	MT 59925	NOXON	MT 59853	BOZEMAN	MT 59715
ALBERT D ANGOVE SPOKANE CO DEPT OF PARKS AND REC WEST 115 BROADWAY AVE		ST REGIS PAPER COMPANY		JEFF STERN	
SPOKANE	WA 99201	P.O. BOX VX LIBBY	MT 59923	RT. 2 BOX 407	
DIANE STROM		LARRY SVEFDROF		COLVILLE	WA 99114
P.O. BOX 504		303 CALIFORNIA		STUART SWENSON	
NOXON	MT 59853	LIBBY	MT 59923	BOX T	
MITCH TALIAFERRO		LIBBY	MT 59923	LIBBY	MT 59923
P O BOX 1092		MIKE TANCHEK		THE WESTERN NETWORK 1700 PASEO DE PERALZA	
IDABEL	OK 74745	BOX 699		SANTE FE	NM 87501
THE WESTERN NEWS		TROY	MT 59935	ALEX THOMPSON	
BOX M		PETER KIRBY THE WILDERNESS SOCIETY 7901 PENNSYLVANIA AVE NW		RT. 2	
LIBBY	MT 59923	WASHINGTON	DC 20006	TROY	MT 59935
TOBACCO VALLEY NEWS BOX 307		U.S. ARMY CORPS OF ENGINEERS LIBBY DAM PROJECT STAR RT. 2		U.S. BUREAU OF MINES CHIEF, WESTERN FIELD OPER CENTER EAST 360 THIRD AVE.	
EUREKA	MT 59917	LIBBY	MT 59923	SPOKANE	WA 99202
U S FISH & WILDLIFE SERVICE BILLINGS AREA OFFICE 316 N 26TH FEE BLDG RM 3035 BILLINGS	MT 59101	CHRIS JOSEPH UNION OIL CO OF CALIFORNIA 461 S BOYLESTON STREET		WAYNE STRONG UNION OIL CO OF CALIFORNIA P.O. BOX 2620	
MARK D SHAPLEY UNIVERSITY OF MONTANA ENVIRONMENTAL STUDIES 750 EDDY STREET MISSOULA	MT 59812	LOS ANGELES	CA 90017	CASPER	WY 82402
		JAY VEST		PETER WAGSTAFF	
		P.O. BOX 8703		P.O. BOX 909	
		MISSOULA	MT 59807	COEUR D'ALENE	ID 83814

GILG. WARREN

BOX 135

WINTHROP

WA 92862

W WEYDEMEYER

BOX 77

FORTINE

MT 59918

WILLIAM D. MORSE
WILDLIFE MANAGEMENT INSTITUTE
1617 N E BRAZEE ST

PORTLAND

OR 97212

RUS WILLIS

STAR RT. 1 BOX 16

HERON

MT 59844

ERWIN AND BEATRICE WOESSNER

206 BULL RUN ROAD

NOYON

MT 59853

WESTERN ENVIRONMENTAL TRADE ASSN
2201 COLONIAL DRIVE
ATTN PETER JACKSON
HELENA

WILDERNESS INSTITUTE
SCHOOL OF FORESTRY
UNIVERSITY OF MONTANA
MISSOULA

BOB WILKINS
P.O. BOX 278

LIBBY

ROBERT F. WILSON, COUNTY AGENT

418 MINERAL AVE

LIBBY

FRANK WOOD

RT 2 BOX 601

LIBBY

MT 59601

MT 59812

MT 59923

MT 59923

MT 59923

WESTERN FOREST INDUSTRIES
1300 E W TAYLOR

PORTLAND

OR 97209

WILDERNESS SOCIETY
1901 PENNSYLVANIA AVE. NW

WASHINGTON

DC 20006

REPRESENTATIVE PAT WILLIAMS

1233 LONGWORTH HOUSE OFFICE BLDG

WASHINGTON

DC 20513

TIM TETHEROW
WIRTH ASSOCIATES
2701 E. CAMELBACK RD

PHOENIX

AZ 85016

CHARLES WOODS

RT 2 BOX 759

LIBBY

MT 59923

APPENDIX

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APPENDIX A

GLOSSARY

- Acre-Equivalent:** A unit of habitat output related to fish or wildlife habitat improvement projects. Acre equivalents are based on the acres of habitat that are influenced by an acre of habitat actually modified by the project.
- Acre-foot:** A measure of water volume equal to the amount which would cover an area of 1 acre to a depth of 1 foot (325,851 gallons or 43,560 cubic feet).
- Affected Environment:** The natural and physical environment and the relationship of people to that environment that will or may be changed by actions proposed.
- Allocation:** The assignment of management prescriptions to particular land areas to achieve the goals and objectives of the alternative.
- Allowable Sale Quantity:** The quantity of timber that may be sold from the area of land covered by the Forest Plan for a time period specified by the Plan. This is usually expressed on an annual basis as the average annual allowable sale quantity.
- Alternative:** In Forest planning, a mix of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives; Different Approaches to Managing the Land.
- Analysis Area:** An analysis area is a grouping of similar land areas of various sizes based on common impacts, effects, and social or economic factors. Analysis areas are not contiguous.
- Analysis of the Management Situation:** A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.
- Animal Unit Month (AUM):** The amount of feed or forage required by one mature (1,000 lbs) cow or equivalent for one month.
- Arterial Roads:** Roads comprising the basic access network for National Forest System administrative and management activities. These roads serve all resource elements to a substantial extent, and maintenance is not normally determined by the activities of any one element. They provide service to large land areas and usually connect with public highways or other Forest arterial roads to form an integrated network of primary travel routes. The location and standard are determined often by a demand for maximum mobility and travel efficiency rather than by a specific resource management service. Usually they are developed and operated for long-term land and resource management purposes and constant service.
- Available Forest Lands:** Land which has not been legislatively withdrawn from timber production by Congress or administratively withdrawn from timber production by the Secretary of Agriculture or Forest Service Chief.
- Base Sale Schedule:** The timber harvest schedule for a planning period in which (1) the planned sale and harvest for any future decade is equal to or greater than that for the preceding decade and (2) this planned sale and harvest for any decade is not greater than long-term sustained yield capacity.

Benchmark: Minimum and maximum limits in the capability to supply various resources.

Big Game: Those species of large mammals normally managed as a sport hunting resource, such as elk, deer, etc.

Big Game Summer Range: Land used by big game during the summer months.

Big Game Winter Range: The area available to and used by big game through the winter seasons.

Biological Growth Potential: The average net growth attainable in a fully stocked natural area of Forest land.

Board Feet: The amount of timber equivalent to a piece of wood one inch thick, 12 inches long, and 12 inches wide; the traditional method of measuring timber volumes; MMBF = million board feet; MBF = thousand board feet.

Board Foot/Cubic Foot Conversion Ratio: Both board foot and cubic foot volumes can be determined for timber stands. The number of board feet per cubic foot of volume varies with tree species, diameter, height, and form factors. For the Kootenai, the Forest-wide average conversion is 4.4 board feet per cubic foot. This factor is applied to the cubic foot FORPLAN outputs to give board foot estimates.

Browse: Twigs, leaves, and young shoots of trees and shrubs on which animals feed; in particular, those shrubs which are utilized by big game animals for food.

Capable Forest Land: Land with a biological growth potential which is equal to or exceeds the minimum standard for timber production (an average annual growth rate of at least 20 cu. ft. per acre).

Capital Investment: Investments in facilities such as roads and structures with specially-appropriated funds.

Cavity: The hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals.

CEQ: See Council on Environmental Quality.

CFR: See Regulations.

Clearcutting: The removal in a single cut of the entire standing crop of trees. It prepares the area for rapid seed germination and growth of a new even-aged stand. See Even-Aged Silviculture.

Closure: The administrative order restricting location, timing, or type of vehicle use in a specific area.

Collector Roads: Roads constructed to serve two or more elements but which do not fit into the other two categories (arterial or local). Construction costs of these facilities are prorated to the respective element served. These roads serve traffic from Forest local roads or terminal facilities. The location and standard are influenced by both long-term multiresource service needs and travel efficiency. Forest collector roads are operated for constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.

Commercial Forest Land: Forest land which is producing or capable of producing crops of industrial wood and which has not been reserved or deferred. This includes areas suitable for management to grow crops of industrial wood generally of a site quality capable of producing in excess of 20 cubic feet per acre of annual growth. This includes both accessible and inaccessible areas. Permanently inoperable or nonstockable areas are excluded because they are not suitable for silvicultural management. Conversely, nonstocked areas which could be stocked and otherwise meet this definition are included.

Commodities: Products produced from a parcel of land, e.g., outputs of wood, livestock forage, and minerals.

Concern: A problem requiring resolution, or a condition constraining management practices. These are identified by FS personnel.

Constraint: A restriction of the latitude the FORPLAN model was given in order to reach a desired objective.

Consumptive Use: Uses of a resource that reduce the supply. Examples of some consumptive uses of water are irrigation, domestic, and industrial use.

Coordinating Requirements: Forest policies.

Corridor: A linear strip of land which has ecological, technical, economic, social, or similar advantages over other areas for the present or future location of transportation or utility routes.

Cost-Efficiency: A comparative measure of economic efficiency determined by maximizing the present net value of an alternative, subject to meeting the objectives of the alternatives.

Costs Saved: Those costs foregone due to reductions in priced and nonpriced outputs from Maximum PNV benchmark. These saved costs are net of funds reallocated among competing priced and nonpriced outputs.

Cover/Forage Ratio: The ratio of cover (usually conifer types) to foraging areas (natural openings, clearcuts, etc.).

Critical Habitat: Key land areas used by wildlife for forage and reproduction.

Cultural Resources: The physical remains (artifacts, ruins, burial mounds, petroglyphs, etc.) and conceptual content or context (as a setting for legendary, historic, or prehistoric events as a sacred area of native peoples, etc.) of an area.

Deficit Timber Sale: A timber sale where costs associated with producing the primary product(s) plus profit margin are greater than the selling value of the same product(s).

Demand: A schedule of the quantity of a product or Forest output that will be consumed at various prices.

Departure: In order to meet overall multiple use objectives, the Secretary of Agriculture may establish an allowable sale quantity for any decade which departs from the projected long-term average sale quantity that would otherwise be established.

Developed Recreation Site: Relatively small, distinctly defined area where facilities are provided for concentrated public use--e.g., campgrounds, picnic areas, swimming areas.

Dispersed Recreation: That portion of outdoor recreation use which occurs outside of developed recreation sites.

Diversity: The distribution and abundance of different plant and animal communities and species within an area.

Economic Efficiency Analysis: A comparison of the values of resource inputs (cost) required for a possible course of action with the values of resource outputs (benefits) resulting from such action. In this analysis, incremental market and nonmarket benefits are compared with investment and physical resource inputs.

Effects: Results expected to be achieved or actually achieved related to physical, biological, social, and economic factors resulting from the achievement of outputs. Examples of effects are tons of sediment, pounds of forage, person-years of employment, income, etc. There are direct effects, indirect effects, and cumulative effects.

Endangered Species: plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

Esthetics: The sensitivity to natural beauty or natural conditions.

Even-Aged Silviculture: The combination of timber management actions that result in the creation of stands where trees of essentially the same age grow together.

Clearcutting: The removal, in a single cut, of all trees in a stand or area.

Shelterwood Cutting: The removal of all trees in a series of two or more cuts over a period of not more than 30 years.

Seed Tree Cutting: Similar to clearcutting, except that a few of the better trees of the desired species are left scattered over the area to provide seed for regeneration.

Fire Management Area:

2--Includes commercial timberlands and wildlife habitat areas where planned ignitions may be used to achieve land management objectives and where unplanned ignitions will receive appropriate suppression action.

3--Includes lands withdrawn from the commercial timber base where prescription fire, including planned and unplanned ignitions, may be used to achieve land management objectives.

4--Includes established wilderness managed for fire under a separate approved fire management plan subject to the same kinds of consideration for which fire is managed on nonwilderness lands.

5--Includes lands managed for recreational and/or educational purposes, but can also include administrative sites and areas sensitive to viewing considerations, as well as limited use areas with unstable soils and steep slopes.

Fuels: Includes both living and dead, woody vegetative materials which are capable of burning.

Fuels Management: Manipulation or reduction of fuels to meet Forest protection and management objectives while preserving and enhancing environmental quality.

Goal: A concise statement of the state or condition that a land and resource management plan is designed to achieve. A goal is usually not quantifiable and may not achieve a specific date for completion.

Goods & Services: The various outputs produced by Forest and rangeland renewable resources, the tangible and intangible values of which are expressed in market and nonmarket terms.

Grazing Allotment: See "Range Allotment."

Guidelines: An indication or outline of a policy or conduct.

Indicator Species: A plant or animal species adapted to a particular kind of environment. Its presence is sufficient indication that a specific habitat conditions are also present.

Issue: See "Public Issue."

Local Roads: Roads constructed and maintained for, and frequently by, the activities of a given resource element. Some use may be made by other element activities, but normally maintenance is not affected by such use. These roads connect terminal facilities with Forest collector or Forest arterial roads or public highways. The location and standard usually are determined by the requirement of a specific resource activity rather than by travel efficiency. Forest local roads may be developed and operated for constant or intermittent service depending on land use and resource management objectives for the area served by the facility.

M: Thousand.

MM: Million.

Management Area: An area having common management direction and may be noncontinuous in the Forest.

Management Direction: A statement of goals, objectives, standards, policies, and guidelines that direct management for a resource or area of land.

Management Intensity: The management practice or combination of management practices and their associated costs designed to obtain different levels of goods and services.

Management Prescription: Management practices selected and scheduled for application on a specific management area to attain multiple use and other goals and objectives.

Maximum Modification: See "Visual Quality Objective (VQO)."

Mineral Development: The preparation of a proven mineral deposit for mining.

Mineral Entry: The filing of a mining claim on public land to obtain the right to any minerals it may contain.

Mineral Exploration: The search for valuable minerals on lands open to mineral entry.

Minerals, Leasable: Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulphur, and geothermal steam.

Minerals, Locatable: Those hardrock minerals which are mined and processed for the recovery of the minerals; often metallic. May include certain nonmetallic minerals and uncommon varieties of mineral materials such as valuable and distinctive deposits of limestone or silica. May include any solid, natural inorganic substance occurring in the crust of the earth, except for the common varieties of mineral materials and leasable materials.

Mining Claim: That portion of the public land held for mining purposes in which the right of exclusive possession of locatable mineral deposits is vested in the locator of a deposit.

Modification: See "Visual Quality Objective (VQO)."

Monitoring and Evaluation: The periodic evaluation, on a sample basis, of Forest Plan management practices to determine how well objectives have been met and how closely management standards have been applied.

Mountain Pine Beetle (MPB): A tiny black insect, ranging in size from 1/8 to 3/4 inches, that bores its way into the tree's cambium and cuts off its supply of food, thus killing the tree.

Multiple Use: The management of all renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Nonconsumptive Use: Those uses of resources that do not reduce the supply. For example: Nonconsumptive uses of water included hydroelectric power generation, boating, swimming, etc.

Nondeclining Even Flow: The quantity of timber which can be sold from each National Forest equal to or less than a quantity which can be removed from such Forest annually in perpetuity on a sustained yield basis, greater than or equal to the volume offered for sale in the preceding decade. Nondeclining even flow is calculated and scheduled in the FORPLAN model on the basis of cubic foot volume.

Departure: In order to meet overall multiple use objectives, the Secretary may establish an allowable sale quantity that would otherwise be established.

Nongame: Species of animals which are not managed as a sport hunting resource.

Nonmarket Valued Outputs: Goods and services valued in terms of what reasonable people would be willing to pay rather than go without the output. Those obtaining the outputs do not pay all or part of what they would be willing to.

Objective: A specified statement of measureable results to be achieved within a stated time period. Objectives reflect alternative mixes of all outputs or achievements which can be attained at a given budget level. Objectives may be expressed as a range of outputs.

Objective Function: A term used in linear programming describing the criteria to be optimized. Examples of objective functions are: maximize present net value, minimize cost or maximize timber.

Off-Road Vehicle (ORV): Any vehicle capable of being operated off an established road or trail, e.g., motorbikes, four-wheel drives, and snowmobiles.

Old Growth Timber: A stand of trees that is past full maturity and showing decadence, the last stage in forest succession.

Opportunity Cost: An opportunity cost is value foregone. In this analysis it is a cost calculated as the difference between present net value of the alternative and the present net value of the maximum PNV increment. Opportunity costs may be only a partial measure of foregone PNV or present net benefits. See "Costs Saved."

Overthrust Belt: A narrow zone, extending from Alaska to Mexico, which resulted from compressional stresses within the earth, and which is characterized by abundant large thrust faults. This zone passes through and includes all of western Montana.

Partial Retention: See "Visual Quality Objective (VQO)."

Person-Years: A person-year equals 52 weeks or 260 work days.

Planning Area: The area covered by a Regional or Forest Plan.

Planning Period: The 50-year time frame, (1980-2030), for which goods, services, and effects were projected in the development of the Forest Plan.

Policy: A guiding principle which is based on a specific decision or set of decisions.

Prescription: See "Management Prescription."

Prehistoric Site: Archaeological sites associated with American Indians and usually occurring before contact with Europeans.

Precommercial Thinning: The reduction in density of trees making up a stand. A given amount of trees are cut to achieve the desired density before the trees reach noncommercial size, primarily to accelerate diameter growth, but also to improve the average form of the remaining trees.

Present Net Value (PNV): The difference between the discounted benefits and the discounted costs over a given time period.

Preservation VQO: See "Visual Quality Objectives."

Production Potential: The capability of the land or water to produce life-sustaining features (forage, cover, aquatics).

Public Issue: A subject or question of widespread public interest relating to management of National Forest System lands identified through public participation.

Range Allotment: An area designated for the use of a prescribed number of sheep or cattle under one management plan.

Real Dollar Value: A monetary value which compensates for inflation.

Record of Decision: A document separate from but associated with an environmental impact statement that publicly and officially discloses the responsible official's decision on the proposed action.

Recreation Visitor Day (RVD): One visitor day equals 12 hours (one person for 12 hours, or 12 people for 1 hour, or any combination thereof).

Reforestation: The renewal of forest cover by seeding, planting, and natural means.

Regeneration: The renewal of a tree crop, whether by natural or artificial means.

Research Natural Area: An area in as near a natural condition as possible which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecologic community primarily for scientific and educational purposes, commercial and general public use is not allowed.

Retention: See "Visual Quality Objective (VQO)."

Right-of-Way: An easement in the lands of others obtained for public access by donation, purchase, or condemnation. Generally, does not apply to absolute purchase of ownership.

Riparian: Land areas which are directly influenced by water. They usually have visible vegetative or physical characteristics showing this water influence. Streamsides, lake borders, or marshes are typical riparian areas.

Riparian Areas: Streams, lakes, ponds, wetlands, flood plains, and their associated aquatic and riparian ecosystems.

Road Maintenance Levels: Levels are described as follows:

Level 1: This level is basic custodial care as required to protect the road investment and to see that damage to adjacent land and resources is held to a minimum.

Level 2: This level is used on roads where management requires that the road be open for limited passage of traffic. Traffic is normally minor, usually consisting of one or a combination of administrative use, permitted use, or specialized traffic.

Level 3: This level is used on roads which are opened for public traffic and generally applies when use does not exceed 15 average daily traffic (ADT). A road may receive only one or two vehicles a day for most of the year; however, during a brief period, such as hunting season, the road may receive 20 or 30 vehicles a day. The road is maintained for safe and moderately convenient travel suitable for passenger cars.

Level 4: This level generally applies when use of a road is between 15 average daily traffic (ADT) and 100 ADT. At this level, more consideration is given to the comfort of the user. These roads are frequently surfaced with aggregate material, but some routes may be paved to meet economical consideration of the limited aggregate resource and the surface replacement cost factors.

Level 5: This level is generally maintained for use of 100 ADT and greater. Roads in this category include both paved and aggregate surfaces. Safety and comfort are important considerations. Abrupt changes in maintenance will be posted to warn a traveler until these deficiencies are corrected.

Roadless Areas: Undeveloped Federal land within which there are no improved roads or roads maintained for travel by means of motorized vehicles intended for highway use.

Roadless Areas Review and Evaluation II (RARE II): A National program with the purpose of identifying areas for wilderness and making recommendations to Congress regarding their designation.

Rotation: The planned number of years between the formation or regeneration of a crop or stand and its final cutting at a specified stage of maturity.

RPA: The Forest and Rangeland Renewable Resource Planning Act of 1974. Also refers to the National Assessment and recommended Program developed to fulfill the requirements of the Act. The most recent recommended program was done in 1980.

RPA Program: The recommended direction for long-range management of renewable resources of National Forest System lands. This direction serves as the basis for the Regional targets assigned to the Forest. The development of this direction is required by the Forest and Rangeland Renewable Resources Planning Act.

Salvage Cutting: Done to remove trees in imminent danger of being killed or damaged by injurious agents. Dead and dying trees are included in salvage cuttings.

- Sawtimber: Trees that will yield logs suitable in size and quantity for the production of lumber.
- Sediment: Solid material, both mineral and organic, that is in suspension, being transported, or has been moved from its site of origin by air, water, gravity, or ice.
- Site Preparation: A general term for removing unwanted vegetation, slash, and even roots and stones from a site before reforestation.
- Slash: Wood that is left over from firewood and timber cutting--usually piled to discourage the quick spread of fires.
- Snag: A standing dead tree larger than six inches in diameter from which the leaves and most of the branches have fallen.
- Special Use Permit: A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land for some special purpose.
- Special Stipulation: Terms and conditions of use attached to leases where needed to protect specific resources or uses on National Forest lands.
- Stand: An aggregation of trees or other growth occupying a specific area and sufficiently uniform in composition (species), age arrangement, and conditions as to be distinguishable from the other growth on adjoining lands.
- Standard: A principle requiring a specific level of attainment, a rule to measure against.
- Standard Stipulation: Terms and conditions of use attached to all leases including fire prevention, pollution control, cultural resource inventory, endangered or threatened species examination, esthetics control, and erosion control.
- Stipulation: Terms and conditions of use attached to a lease.
- Suitability: The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.
- Supply: A schedule of the quantity of a product or forest output that will be produced at various prices.
- Suppression (Fire Suppression): Any act taken to slow, stop, or extinguish a fire. Examples of suppression activities include fireline construction, backfiring, and application of water or chemical fire retardants.
- Sustained Yield: The achievement and maintenance in perpetuity of a high level annual or regular periodic output of the various renewable resources of the National Forest without impairing the productivity of the land.

System Roads: Roads that are part of the Forest development transportation system, which includes all existing and planned roads, as well as other special and terminal facilities designated as Forest development transportation facilities.

Target: Quantifiable output assigned to the Forest.

Temporary Road: A road that will be physically obliterated and seeded after its primary use is completed (i.e., spur road for logging).

Threatened and Endangered Species: A species or subspecies of animals or plants whose prospects of survival and reproduction are in immediate jeopardy, or likely to become so within the foreseeable future. Threatened species are identified by the Secretary of Interior in accordance with the 1973 Endangered Species Act.

Tiering: Tiering refers to the coverage of general matters in broad environmental impact statements with subsequent statements covering more narrow topics. Incorporating by reference, the general discussions and concentrating solely on the issues specific to the statement or analysis being prepared, project environmental assessments are "tiered" to the Forest Plan.

Timber Harvest Schedule: The quality of timber planned for sale and harvest, by time period, from the area of land covered by the Forest Plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity.

Timber Production: The growing, tending, harvesting, and regeneration of regulated crops of industrial wood. Industrial wood includes logs, bolts, or other round sections cut from trees for industrial or consumer use, except fuelwood.

Timber Stand Improvement (TSI): All noncommercial intermediate cuttings and other treatments to improve composition, condition, and increment of a timber stand.

Transitory Range: Suitable forage created for livestock use as a result of timber harvesting activities, or fire.

Uneven-Aged Silvicultural Systems: The combination of action that result in the creation of forests or stands of trees, in which trees of several or many ageas grow together. Cutting methods that develop and maintain uneven-age stands are individual tree and group selection cutting methods:

Individual Tree Selection Cutting: The removal of selected trees of all size classes on an individual basis.

Group Selection Cutting: The removal of selected trees of all size classes in groups of a fraction of an acre up to two or three acres in size.

Unsuitable Lands: Lands not allocated to related timber management or not suitable as determined through the suitability analysis.

Viable Populations: A wildlife or fish population of sufficient size to maintain its existence over time in spite of normal fluctuations in population levels.

Visual Quality Objective (VQO): A desired level of excellence based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape.

Preservation: In general, human activities are not detectable to the visitor.

Retention: Human activities are not evident to the casual Forest visitor.

Partial Retention: Human activities may be evident, but must remain subordinate to the characteristic landscape.

Modification: Human activity may dominate the characteristic landscape but must, at the same time, utilize naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in middle-ground or background.

Maximum Modification: Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

Enhancement: A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Visual Resource: The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Water Yield: The measured output of the Forest's streams.

Water Yield Increase: Additional water released to the Forest's streams as a result of Forest management activities.

Wetlands: Those areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands on the Kootenai National Forest include marshes, bogs, sloughs, potholes, river overflows, mud flats, wet meadows, seeps, and springs.

Wilderness: Under the 1964 Wilderness Act, wilderness is undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. It is protected and managed so as to preserve its natural conditions.

Wilderness Study: An analysis to determine an area's appropriateness, cost, and benefits for addition to the National Wilderness Preservation System.

Withdrawal: An order removing specific land areas from availability for certain uses.

APPENDIX B

TEN LAKES WILDERNESS STUDY AREA TIMBER VOLUME

Inventoried Volume:

	<u>CF/Acre</u>	<u>SE%</u>	<u>Acres</u>	<u>MMCF</u>
Non-Commercial	1216	27.9	23537	28.6
High Volume PI	4219	15.7	5721	24.1
Low Volume PI	2737	17.8	7653	20.9
All Land	1986	13.1	36911	73.3

Modeled Volume:

	<u>CF/Acres</u>	<u>Acres</u>	<u>MMCF</u>
Non-Commercial	1140	16490	18.8
MIXCON I	4010	6450	25.9
MIXCON II	2090	12620	26.4
LPP	2180	330	0.7
All Land	2000	35890	71.8

APPENDIX C

MANAGEMENT PRESCRIPTIONS

The following is a summary of the prescriptions used to formulate the alternatives for the Ten Lakes Montana Wilderness Study Area. A detailed description of the management prescriptions is a planning record and is available for review at the Forest Supervisor's Office in Libby, Montana.

Semi-Primitive Nonmotorized Recreation

Management emphasis is on providing for the protection and enhancement of areas for roadless dispersed recreation and to provide for wildlife management where wildlife values are great. Timber harvesting may be allowed, using aerial systems only, to protect from epidemic insect or disease infestation and for salvage in event of a major wildfire. The VQO is Retention. Snowmobile use is permitted.

Semi-Primitive Motorized Recreation

Management emphasis is on providing opportunities for motorized dispersed recreation in a natural-appearing environment. These areas are accessible by trails and roads. At higher management intensities, regulated timber harvested is allowed as long as it does not detract from the viewing and recreation values. The VQO can range from Retention to Modification.

Viewing

Management emphasis is to maintain the landscape in a natural-appearing environment. At higher management intensities, regulated timber harvesting can occur but is generally limited to improve viewing and recreation opportunities and for salvage operations. The VQO is Retention.

Wilderness Study

Intent is to prevent loss of wilderness characteristics pending a Congressional review. All management activities are in a deferred status. Snowmobiling use is permitted pending the Congressional review. Snowmobiling would be prohibited after a Congressional decision for wilderness.

Big Game Winter Range

Emphasis is to manage areas of high potential for winter range, to maintain or enhance habitat for the benefit of the appropriate species while recognizing the viewing resource in critical areas. Appropriate species may include elk, moose, sheep, goats, whitetail deer, and mule deer. These lands are generally noncommercial timber lands. Direct habitat improvement may include spring and fall prescribed fire, mechanical manipulations, fertilization, and seeding. Unregulated timber harvesting is permissible to benefit wildlife. The VQO ranges from Maximum Modification to Partial Retention. The use of motorized vehicles is prohibited during important wintering periods.

Big Game Winter Range/Timber

Intent is to manage areas of high potential for big game winter range. Maintains or enhances wildlife habitat for benefit of appropriate wildlife species while managing the timber and viewing resources in critical areas. Emphasizes direct habitat improvement through prescribed fire and regulated timber harvest. These lands contain both winter game range and commercial timber land values. Timber harvest will occur where winter game range values can be enhanced. Low standard roads permitted for timber management activities. The VQO varies from Maximum Modification to Partial Retention.

Big Game Summer Range/Timber

The intent of this prescription is to maintain and enhance nonwinter big game habitat. Timber management will be a tool used to provide diverse habitats and cover needs, over time, to enhance wildlife habitat. Livestock grazing is generally not compatible. Road densities are minimized based on the logging systems and public use of roads will be limited to minimize disturbance to big game. The VQO ranges from Maximum Modification to Partial Retention.

Wildlife/Timber

Intent is to provide management for species richness, habitat diversity, and old growth dependent species in manageable blocks scattered across the Forest. Species other than big game are featured. Stands of all ages are included to insure a continuous supply of old growth timber over time. The VQO ranges from Maximum Modification to Partial Retention.

Grizzly/Timber

Intent is to maintain or enhance grizzly habitat, reduce grizzly/human conflicts, and assist in the recovery of the species. Coordinated timber management will be a major tool in achieving these objectives. This prescription may occur in commercial timber lands which are in grizzly habitat situations 1, 2, or 3. Conflicts will be resolved in favor of the grizzly. The VQO ranges from Maximum Modification to Partial Retention.

Grizzly

This management emphasis occurs only in the Current Direction and applies only to the Cabinet-Yaak and Whitefish Range Ecosystems. The intent is to provide for protection and enhancement of grizzly habitat. Timber harvest is permitted only for salvage using aerial or skyline systems and only during the period of bear hibernation. Generally, however, this management area occurs in noncommercial timber lands. Roads are closed to motorized use but snowmobiling is permitted in the winter. The VQO is Retention.

Timber Optimization

Intent is to produce high levels of timber production through the use of silvicultural practices which meet the constraints of soil and water protection and other process criteria. This prescription is confined to those

areas capable of producing a continued flow of wood products in a regulated manner. Minimum viable wildlife populations will be maintained. Critical habitats will be maintained by restricting seasons of use. The VQO is Maximum Modification.

Timber/Viewing

Intent is to manage for enhanced timber production while giving consideration to the visual resource. The VQO is Modification. Minimum viable wildlife populations will be maintained while recognizing certain critical habitats, such as elk wallows, calving areas, etc.

Viewing/Timber

The intent is to maintain a natural appearing landscape for acceptable viewing opportunities while managing the timber resource. The VQO is Partial Retention. Viable wildlife populations will be maintained.

Minimum Use/Steep Slopes

Management emphasis is to insure soil and water stability by maintaining vegetation in a healthy condition and by minimizing disturbances to the surface. This emphasis may occur where timber is limited or not manageable because of unstable soils and/or steep slopes. Summer and winter ranges and special habitats will be managed in natural condition with minimal manipulation. Roads will be kept to a minimum. The VQO ranges from Maximum Modification to Partial Retention.

Limited Use Areas

Intent is to insure soil and water stability by maintaining vegetation in a healthy condition and by minimizing disturbances to the surface. There are no range or timber activities. Roads are generally not needed, but are allowed to cross to reach other areas. Roads will be located and designed to minimize conflicts with soil, water, and viewing. The VQO ranges from Maximum Modification to Partial Retention.

APPENDIX D

Oil and Gas Leasing Conditions Assessment by Allocation (Management Area)

Category Allocation ^{1/}	Standard or General Conditions	Additional Special Stipulations	Description of Additional Conditions	(Definitions)
Semi-Primitive Non-Motorized Recreation	X	X	SOR-LOC	(<u>S</u> urface <u>O</u> ccupancy <u>R</u> estricted by <u>L</u> ocation)
Semi-Primitive Motorized Recreation	X			
Viewing	X	X	SOR-LOC	(Surface Occupancy Restricted by Location)
Wilderness Study	X	X	SOR-LOC	(Surface Occupancy Restricted by Location)
Big Game Winter Range	X	X	Activity Coordination	(Restricted by Timing of Activity)
Big Game Winter Range/ Timber	X	X	Activity Coordination	(Restricted by Timing of Activity)
Wildlife/Timber	X	X	Activity Coordination	(Restricted by Timing of Activity)
Grizzly/Timber	X	X	Activity Coordination	(Restricted by Timing of Activity)
Viewing/Timber	X			
Timber/Viewing	X			
Timber Optimization	X			
Minimum Use-Steep Slopes	X	X	SOR-LOC	(Surface Occupancy Restricted by Location)
Limited Use	X			

^{1/} For more detailed description of the intent of the allocation, see Appendix C.

APPENDIX E

GRIZZLY MANAGEMENT SITUATIONS

GRIZZLY MANAGEMENT SITUATION NO. 1

The area contains population centers and habitat components which meet seasonal or yearlong grizzly bear needs. Generally, the area has a recognized history of bear use and has several kinds of constituent elements. Would meet the concept of critical (small c) habitat.

Example of Management Situation No. 1

Higher elevation types present in Whitefish and Cabinets where avalanche chutes, denning areas, berry fields, and other constituent elements are relatively abundant.

GRIZZLY MANAGEMENT SITUATION NO. 2

These areas may have one or more kinds of constituent elements but not necessarily all those needed for yearlong support of grizzlies. Habitat types and cover types are those which provide potential or actual opportunities for grizzly habitat. Generally, some recognized and historical bear use has been documented. Often proximate to Situation No. 1.

Example of Management Situation No. 2

Predominantly forested lands lying below and adjacent to higher elevation areas. Those in the ABLA series or with existing berry fields, riparian zones, wet meadows, sidehill parks are good examples. In some cases "islands" of this type may exist but be disjunct from higher elevations. Old burns at low elevations and cutover spruce basins are other examples.

GRIZZLY MANAGEMENT SITUATION NO. 3

High value seasonal ranges upon which grizzlies may depend for only a short, but often critical, period. The best examples are spring ranges where the bears descend following denning. Ungulate winter ranges where carrion may be available in some proximity to denning sites. Also late fall low elevation berry fields or riparian zones.

Example of Management Situation No. 3

Segments of the Bull River valley are logically some of the only available spring ranges for grizzlies in the Cabinets. Main lower drainages in the Whitefish and Cabinet Ranges are other examples. These areas may receive continued use during early spring (late April-June) and again in the fall (October-November).

GRIZZLY MANAGEMENT SITUATION NO. 4

Primarily forested lands lying at low to mid-elevations that have few or no constituent elements and have little actual or potential for bear foods. These areas may provide movement corridors between seasonal ranges and cover needs may be predominant. Often little or no recognized or documented history of use by grizzlies.

Example of Management Situation No. 4

Low elevation forests in the TSHE, THPL, ABGR, and PSME series which are not closely proximate to major grizzly concentration areas. Forested zones which may connect areas of high bear density with "islands" of high quality habitat.

GRIZZLY MANAGEMENT SITUATION NO. 5

Areas with little or no suitable, available habitat. Low to mid-elevation areas that are often widely disjunct from known population centers. Often due to limited potential for bear habitat, a past history of extensive development or displacement of bears by human encroachment, these areas are not suited to management for recovery of grizzly bears. Important habitat components for bears are very limited, unavailable or not present.

Appendix F

Chapter IV Bibliography

Analysis of the Management Situation, Kootenai National Forest, September 1982.

CALDAT, Regional Economic Input/Output Computer Model.

Christensen, Alan. Personal Communications, June 1982.

Copper Gulch-Rock Peak Environmental Assessment. Kootenai National Forest, June 1982.

Criteria for the Analysis of the Management Situation, Volume 4, Kootenai National Forest, February 1981. Contains Coefficient Development Assumptions and Rationale for:

Recreation
Timber
Wildlife (Elk)

Cumulative Effects Analysis Process - Grizzly Habitat Component Mapping. Kootenai National Forest, 1982.

Dillon, John. Review of Livestock Grazing Potential on the Kootenai National Forest. Memo, November 17, 1981.

Eureka-Grave Creek Planning Unit. Final Environmental Impact Statement, Kootenai National Forest, May 1974.

Haugen, Jerry. Personal Communication, September 1982.

Kootenai National Forest Proposed Plan (Draft). Kootenai National Forest. September 1982.

Leimbach, Paul. Personal Communication, August 1982.

Miller, Les. Economic Information Used in the Forest Plan. Kootenai National Forest Planning Record.

Montana Outdoor Recreation Plan, Volume II. Planning Region 10, 1974.

O'Brien, William. Personal Communication, May and June 1982.

Oil and Gas Lease Applications-Environmental Assessment. Kootenai National Forest. August 1982.

Pritchard, John. Personal Communication, July 1982.

Proceedings of Our National Landscape. USDA Forest Service. April 1979.

Recreation Opportunity Inventory and Evaluation. USDA Forest Service, Northern Region, 1974.

Ruediger, Bill and J. Mealey. Coordination Guidelines for Timber Harvesting in Grizzly Habitat. Kootenai National Forest, 1978.

Shadle, Jim. Personal Communication, May 1982.

Ten Lakes Issue Situation Statements, December 20, 1979.

USDA Forest Service. RARE II Final Environmental Impact Statement. January 1979.

_____. RPA: A Recommended Renewable Resource Program.
March 1976.

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